VOLUME 22 PART 3

NORTH AMERICAN FLORA

GROSSULARIACEAE

FREDERICK VERNON COVILLE, NATHANIEL LORD BRITTON

PLATANACEAE

HENRY ALLAN GLEASON

CROSSOSOMATACEAE

JOHN KUNKEL SMALL

CONNARACEAE

NATHANIEL LORD BRITTON

CALYCANTHACEAE

CHARLES LOUIS POLLARD

ROSACEAE (pars)

PER AXEL RYDBERG

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ANNOUNCEMENT

The NORTH AMERICAN FLORA is designed to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curaçao and other islands off the north coast of Venezuela, whose flora is essentially South American.

The work will be published in parts at irregular intervals, by the New York Botanical Garden, through the aid of the income of the David Lydig Fund bequeathed by Charles P. Daly.

It is planned to issue parts as rapidly as they can be prepared, the extent of the work making it possible to commence publication at any number of points. The completed work will form a series of volumes with the following sequence:

Volume 1. Mycetozoa, Schizophyta, Diatomaceae.

Volumes 2 to 10. Fungi.

Volumes 11 to 13. Algae.

Volumes 14 and 15. Bryophyta.

Volume 16. Pteridophyta and Gymnospermae.

Volumes 17 to 19. Monocotyledones.

Volumes 20 to 32. Dicotyledones.

The preparation of the work has been referred by the Scientific Directors of the Garden to a committee consisting of Professors L. M. Underwood and N. L. Britton.

Professor George F. Atkinson, of Cornell University; Professors Charles R. Barnes and John M. Coulter, of the University of Chicago; Mr. Frederick V. Coville, of the United States Department of Agriculture; Professor Edward L. Greene, of the United States National Museum; Professor Byron D. Halsted, of Rutgers College; and Professor William Trelease, of the Missouri Botanical Garden, have consented to act as an advisory committee.

Each author will be wholly responsible for his own contributions, being restricted only by the general style adopted for the work, which must vary somewhat in the treatment of diverse groups.

The subscription price is fixed at $1.50 for each part; it is expected that four or five parts will be required for each volume. A limited number of separate parts will be sold at $2.00 each. Address:

THE NEW YORK BOTANICAL GARDEN
BRONX PARK
NEW YORK CITY

Family 13. GROSSULARIACEAE

By Frederick Vernon Coville and Nathaniel Lord Britton

Shrubs, with erect, ascending, recurved, trailing, or even prostrate stems, often bristly, sometimes with nodal spines. Leaves alternate, simple, petioled, on the lateral branches usually fascicled, deciduous or persistent, the blades variously lobed or toothed, rarely entire, the base of the petiole often dilated; stipules none, or adnate to the petiole. Inflorescence terminal on short axillary branches, racemose, the raceme sometimes reduced to a single flower; flowers bracteate, small, regular, perfect, or sometimes imperfect; hypanthium elongate, short, or obsolete; sepals usually 5, rarely 4, imbricate or nearly valvate; petals small, as many as the sepals, borne alternately with them at the top of the hypanthium; stamens as many as the sepals and opposite them, the filaments short or elongate, the anthers didymous; ovary inferior, 1-celled; style 2-lobed, 2-cleft, or 2-divided, rarely 3-cleft; stigmas small, simple; ovules several or numerous, on two, or rarely three, parietal placentae. Fruit a 1-celled pulpy berry, several- to many-seeded; seeds horizontal, angular, the minute terete embryo in fleshy endosperm.

Plants without nodal spines and without bristles, or, if with them, the flowers without an apparent hypanthium; pedicels jointed beneath the ovary, bearing a pair of bractlets just below the joint, or the bractlets obsolete; fruit disarticulating from the pedicel. 1. Ribes.

Plants with nodal spines, bristly or without bristles; flowers with an evident hypanthium; pedicels not jointed, the bractlets if present minute, situated at the very base of the pedicel, and covered by the bract; fruit not disarticulating from the pedicel. 2. Grossularia.

1. RIBES L. Sp. Pl. 201. 1753.

Ribesium Medic. Phil. Bot. 1: 120. 1789.
Chrysobotrya Spach, Ann. Sci. Nat. II. 4: 18. 1835.
Calobotrya Spach, Ann. Sci. Nat. II. 4: 21. 1835.
Coreosma Spach, Ann. Sci. Nat. II. 4: 22. 1835.
Cerophyllum Spach, Hist. Vég. 6: 152. 1838.
Botryocarpium Spach, Hist. Vég. 6: 158. 1838.

Shrubs, usually unarmed, a few species bristly. Leaves palmately veined, usually lobed, sometimes merely dentate, usually deciduous, rarely persistent. Racemes several- to many-flowered; pedicels jointed beneath the ovary, a pair of bractlets often present just below the joint. Ovary glandular or eglandular, not spiny. Hypanthium tubular to cupuliform, short or elongate, sometimes obsolete. Fruit disarticulating from the pedicel.

Type species, *Ribes rubrum* L.

A. Plants with spines or prickles. (Lacustria.)
Leaves smooth or nearly so; racemes commonly with 10–15 flowers, sometimes fewer; berries dark-purple or almost black. 1. *R. lacustre.*
Leaves pubescent and glandular-hairy on both surfaces; racemes commonly with 3–7 flowers, rarely more; berries bright-red. 2. *R. montigenum.*
B. Plants without spines or prickles.
a. Ovary with sessile glands.
1. Leaves holly-like, evergreen. (Viburnifolia.) 3. *R. viburnifolium.*
2. Leaves maple-like, deciduous.
* Hypanthium conspicuous, urn-shaped, the sepals in anthesis ascending, and then recurved at about the middle. (Nigra.) 4. *R. nigrum.*
** Hypanthium short and inconspicuous, saucer-shaped, the sepals spreading from the base. (Hudsoniana.)
Bracts of the racemes large, broadest above the middle, the lowest often expanded into a leaf-like blade; sepals green; berry at maturity whitened with a dense bloom. 5. *R. bracteosum.*

Bracts of the racemes small, narrowed from the base to a sharp apex; sepals white; berry black, without bloom.
Leaves villous-pubescent underneath, usually with only a shallow sinus, or none at all, at the base; racemes loose, seldom more than 5 cm. long (including the peduncle), commonly 6–12-flowered; bracts usually 3–5 mm. long. 6. *R. hudsonianum.*
Leaves smooth on both surfaces or with traces of coarse pubescence beneath, the basal sinus usually deep; racemes commonly 7–12 cm. long and closely 25–50-flowered; bracts usually minute and less than a millimeter in length. 7. *R. petiolare.*

b. Ovary without glands, or the glands stalked.
1. Sepals slightly united at the base, the hypanthium obsolete.
* Ovary without hairs of any kind. (RUBRA.)
Pedicels usually glandless; sepals and petals yellowish-green; anther-cells distinctly separated by the broad connective, usually widely divergent. 8. *R. vulgare.*
Pedicels usually bearing a few glands; sepals usually mottled with purple, or purple throughout; petals red; anther-cells contiguous, parallel or nearly so. 9. *R. triste.*
** Ovary with gland-tipped hairs, or rarely with only glandless hairs. (PROSTRATA.)
Bracts nearly equaling, or sometimes exceeding, the pedicels.
Racemes erect or ascending; berry bright-red at maturity and without bloom. 10. *R. erythrocarpum.*
Racemes reflexed, the separate pedicels again recurved upward; berry blue-black, with a bloom. 11. *R. acerifolium.*
Bracts not more than half the length of the pedicels.
Sepals about 2–2.5 mm. long, smooth on the outside; petals with rhombic blade on a rather broad stalk, the whole much longer than broad; berry red. 12. *R. glandulosum.*
Sepals about 3–4 mm. long, hairy on the outside; petals fan-shaped with incurved sides, as broad as or broader than long; berry dark-purple or black.
Sepals with glanduliferous hairs on the outside; petals nearly twice as broad as long; berry without bloom. 13. *R. coloradense.*
Sepals without glanduliferous hairs; petals only a little, if any, broader than long; berry with bloom. 14. *R. laxiflorum.*
2. Hypanthium evident, though sometimes short.
* Anthers with a conspicuous cup-shaped apical gland. (VISCOSISSIMA.)
Hypanthium 2½–4 times as long as broad; berry bright-red.
Bracts cuneate-obovate, the usually rounded or truncate summit cut into several deep teeth or lobes; styles usually hairy above. 15. *R. cereum.*
Bracts rhombic, mostly narrowly so, usually acute, entire or occasionally with one lateral lobe, the margin usually minutely glandular-denticulate; styles usually smooth throughout.
Leaves commonly 2.5–4 or even 5 cm. wide; petioles, rachis of the inflorescence, and leaf-blades devoid of pubescence; flowers white, the pedicels commonly 2–5 mm. long. 16. *R. reniforme.*
Leaves commonly 1.5–2.5 cm. wide, seldom 3 cm.; petioles, rachis of the inflorescence, and usually the leaf-blades pubescent; flowers usually pink or pinkish, the pedicels commonly 1–2 mm. long. 17. *R. inebrians.*
Hypanthium less than twice as long as broad; berry black or blue.
Ovary with at least a few gland-tipped hairs, or the hypanthium and the sepals together more than 1 cm. long.
Hypanthium at least twice as long as the sepals. 18. *R. mescalerium.*
Hypanthium little or not at all exceeding the sepals.
Leaf-blades abundantly provided on both surfaces with sessile, exudating glands, but without gland-tipped hairs; hypanthium, sepals, and petals deep-red throughout. 19. *R. ceriferum.*
Leaf-blades with more or less abundant gland-tipped hairs on both surfaces; flowers greenish-white or white, purplish at most only in part.
Sepals longer than the hypanthium, both together less than 7 mm. in length in the dried flower. 20. *R. neglectum.*
Sepals equaling or shorter than the hypanthium, both together more than 7 mm. in length in the dried flower.
Leaves with triangular-ovate, usually acute lobes; sepals acuminate to acute, provided on the back, usually conspicuously, with gland-tipped hairs; plant Mexican. 21. *R. Pringlei.*

Leaves with usually rounded lobes; sepals usually obtuse, without gland-tipped hairs or with only traces of them; plants of the United States.
Ovary covered with gland-tipped hairs; sepals greenish-white, seldom purple-margined; berry black, without bloom. 22. *R. viscosissimum.*
Ovary smooth; some or all of the sepals usually purple-margined; berry of a light blue color due to a heavy bloom. 23. *R. Hallii.*
Ovary smooth; hypanthium and sepals together less than 1 cm. long.
Bracts obovate, the broad summit several-toothed. 24. *R. Dugesii.*
Bracts, except sometimes a few of the lowermost, linear-oblong to lanceolate, usually acute and entire, though often glandular-ciliate.
Sepals longer than the hypanthium.
Leaves smooth above, the margin with gland-tipped hairs. 25. *R. Orizabae.*
Leaves, under a lens, with some scant pubescence above, the margin without gland-tipped hairs. 26. *R. affine.*
Sepals equaling or shorter than the hypanthium.
Leaves rounded, truncate, or even cordate at the base, the sinus shallow and widely open; glands of the herbage usually sessile; hypanthium and sepals together 5–6 mm. long in the dried flower. 27. *R. rugosum.*
Leaves deeply cordate at the base, the sinus usually closed, both surfaces, as well as the young shoots, and especially the petioles, provided with stout, gland-tipped, usually scattered hairs; hypanthium and sepals together 8–10 mm. in length. 28. *R. ciliatum.*

** Anthers with at most a mere callus at the apex.
† Hypanthium smooth, yellow, three or more times as long as thick; leaves involute in vernation. (AUREA.)
Flowers sessile or very nearly so. 29. *R. chihuahuense.*
Flowers distinctly pedicelled.
Hypanthium 1–1.5 times as long as the sepals. 30. *R. aureum.*
Hypanthium about twice as long as the sepals.
Rachis glabrous. 31. *R. gracillimum.*
Rachis villous or puberulent.
Rachis and pedicels villous. 32. *R. odoratum.*
Rachis puberulent; pedicels glabrous. 33. *R. fontinale.*
†† Hypanthium usually hairy, not yellow, or if yellow, less than twice as long as thick; leaves plicate in vernation.
‡ Axis of the raceme straight and stiff, 1 cm. long or less; leaves without glands. (TORTUOSA.) 34. *R. tortuosum.*
‡‡ Axis of the raceme flexuous, few to several cm. long, except in depauperate specimens; leaves usually with glands.
§ Leaves with scattered, sessile, amber-colored, wax-like, non-exudating glands on both surfaces. (AMERICANA.)
Bracts of the raceme, except sometimes the lowermost, broadest below the middle and devoid of glands, or 1–3 glands occasionally present; sepals and petals yellowish-green. 35. *R. americanum.*
Bracts of the raceme usually broadest above the middle, abundantly provided with large sessile glands on the lower surface; sepals and petals canary-yellow. 36. *R. Nelsoni.*
§§ Leaves, when with glands, not as described above. (SANGUINEA.)
Ovary glabrous. 37. *R. Brandegei.*
Ovary with gland-tipped hairs and sometimes other pubescence also.
Hypanthium and sepals greenish-white, both together 5 mm. or less in length, the sepals 3–4 times the length of the hypanthium. 38. *R. Wolfii.*
Hypanthium and sepals red or reddish, rarely white, usually much longer than described above, the sepals at most twice as long as the hypanthium.
Sepals longer than the hypanthium; ovary with only gland-tipped hairs, or the white gland-less hairs, if present, sparse and curled; style glabrous.
Outstretched hypanthium and calyx in dried specimens 6 mm. or less in length. 39. *R. nevadense.*
Outstretched hypanthium and calyx in dried specimens 8–10 or even 12 mm. long.

Leaves tomentose on the back, the larger ones with the terminal lobe about as broad as long; racemes erect or ascending, commonly 10–15-flowered; ovary with scanty short curled hairs among the gland-tipped ones. 40. *R. sanguineum.*

Leaves usually without tomentum on the back, the larger ones with the terminal lobe commonly about twice as broad as long; racemes declined, commonly 15–20-flowered, sometimes even 40-flowered; ovary usually smooth except for the gland-tipped hairs. 41. *R. glutinosum.*

Sepals not longer than the hypanthium; ovary provided with a dense covering of straight, white, divergent hairs, in addition to the gland-tipped ones; style usually villous.

Flowers pink or purple, commonly 8–10 mm. in length from the base of the ovary to the ends of the stamens, on evident pedicels 2–5 mm. long; hypanthium about twice as long as broad. 42. *R. malvaceum.*

Flowers usually white or greenish-white, 5–7 mm. in corresponding length, commonly subsessile in appearance, the pedicels usually 1–2 mm. long; hypanthium before shriveling little longer than broad. 43. *R. indecornm.*

1. **Ribes lacustre** (Pers.) Poir. in Lam. Encyc. Suppl. **2**: 56. 1812.

Ribes oxyacanthoides lacustre Pers. Syn. Pl. **1**: 252. 1805.
Ribes grossularioides Michx.; Steud. Nom. Bot. 691. 1821.
Ribes echinatum Dougl. Trans. Hort. Soc. London **7**: 517. 1830.
Ribes lacustre parvulum A. Gray, Bot. Calif. **1**: 206. 1876.
Ribes parvulum Rydb. Mem. N. Y. Bot. Gard. **2**: 203. 1900.

Spines slender, weak, usually clustered. Branches usually densely bristly; petioles slender, pubescent; leaves nearly orbicular, thin, smooth or nearly so, deeply 5–7-lobed, 3–5 cm. wide, the lobes acutish, incised-dentate; flowers green or purplish; pedicels slender, about 4 mm. long; hypanthium crateriform; sepals short, broad, spreading; stamens very short, not exserted; berry about 6–10 mm. in diameter, purple-black, covered with weak gland-tipped bristles.

TYPE LOCALITY: Lake Mistassini (Canada).

DISTRIBUTION: Newfoundland to Alaska, Massachusetts, Pennsylvania, and Michigan, and in the mountains to Colorado, Utah, and California.

ILLUSTRATIONS: Bot. Cab. *pl. 884;* Guimp. Otto & Hayne, Abb. Holz. *pl. 136;* Loud. Arb. *f. 724;* Bot. Mag. *pl. 6492;* Britt. & Brown, Ill. Fl. *f. 1871;* Card, Bush Fruits *f. 95;* Mém. Soc. Genève 35[3]: *f. 83, 84.*

2. **Ribes montigenum** McClatchie, Erythea **5**: 38. 1897.

Ribes lacustre molle A. Gray, Bot. Calif. **1**: 206. 1876.
Ribes nubigenum McClatchie, Erythea **2**: 80. 1894. Not *R. nubigenum* Philippi, 1857.
Ribes lacustre lentum M. E. Jones, Proc. Calif. Acad. II. **5**: 681. 1895.
Ribes molle Howell, Fl. NW. Am. **1**: 209. 1898. Not *R. molle* Poepp. 1858.
Ribes lentum Coville & Rose, Proc. Biol. Soc. Wash. **15**: 28. 1902.

A straggling shrub, 3–6 dm. high, the stems more or less bristly, the nodal spines short, or sometimes stout and longer than the leaves. Foliage and inflorescence more or less densely pubescent and glandular-pubescent; leaves smaller than those of *Ribes lacustre*, 1.5–4 cm. wide, deeply 5-lobed or 5-cleft, the lobes obovate to oblong, incised-serrate, the teeth acute or obtusish, the petioles mostly shorter than the blades; racemes short, few-flowered, as long as the leaves or shorter; pedicels 2–5 mm. long, as long as the lanceolate or ovate-lanceolate acute bracts or longer; hypanthium crateriform, glandular-bristly; sepals veiny, 3–4 mm. long; berries red, glandular-bristly, palatable.

TYPE LOCALITY: Summit of Mt. San Antonio, southern California (3000 meters).

DISTRIBUTION: In the high mountains of the arid region, from California, Arizona, and New Mexico, northward to Washington, Idaho, and Montana, and in the interior of British Columbia. In Arizona and New Mexico the species becomes less hairy throughout, the ovaries being sometimes quite glabrous.

ILLUSTRATION: Mém. Soc. Genève 35[3]: *f. 85, 86.*

3. **Ribes viburnifolium** A. Gray, Proc. Am. Acad. **17**: 202. 1882.

Evergreen, unarmed; branches straggling; young twigs resinous-glandular. Leaves thick, dark-green above, pale-green and resinous-dotted beneath, ovate to obovate-oval, 2–7 cm. long, obtuse at the apex, narrowed or rounded at the base, sparingly repand-dentate or nearly entire-margined, glabrous or somewhat pubescent when young; petioles rather stout, shorter than the blades, mostly not more than 1 cm. long, pubescent or glabrous; racemes 1 to 3 from the same bud, few–several-flowered, as long as the leaves or shorter, resinous-glandular; pedicels filiform, 5–10 mm. long; bracts narrowly lanceolate, acute, mostly shorter than the pedicels, caducous; hypanthium turbinate; sepals oval, rose-colored, spreading; petals greenish, very small; berry subglobose, about 6 mm. in diameter.

TYPE LOCALITY: Northern part of Lower California, near All Saints Bay.
DISTRIBUTION: Lower and southern California and adjacent islands.
ILLUSTRATIONS: Card, Bush Fruits *f. 99*; Bot. Mag. *pl. 8094*; Mém. Soc. Genève **35**[3]: *f. 72*.

4. **Ribes nigrum** L. Sp. Pl. 201. 1753.

Stems unarmed, 1 m. high or less; young shoots puberulent. Leaves 3–5-lobed, thin, sparingly pubescent and resinous-dotted, mostly somewhat broader than long, cordate or nearly truncate at the base, the lobes broadly ovate, sharply and irregularly serrate, the pubescent petioles as long as the blades or longer; racemes pendulous, pubescent, few–several-flowered, mostly shorter than the leaves; pedicels 4–10 mm. long, longer than the ovate-oblong acute bracts; ovary resinous-dotted; hypanthium campanulate-urceolate; sepals oblong, obtuse, green, ascending at anthesis and recurved at about the middle, much longer than the oblong reddish petals; berries black, subglobose, 8–10 mm. in diameter.

TYPE LOCALITY: Sweden.
DISTRIBUTION: Locally escaped from cultivation in the Middle States.
ILLUSTRATIONS: Engl. Bot. *pl. 1291*; Fl. Dan. *pl. 556*; Loud. Arb. *f. 734*; Fl. Deuts. ed. 5, *pl. 2288*; Card, Bush Fruits *f. 100*.

5. **Ribes bracteosum** Dougl.; Hook. Fl. Bor. Am. **1**: 233. 1832.

Ribes bracteosum viridiflorum Jancz. Mém. Soc. Genève **35**: 339. 1907.

Stems ascending, unarmed, 3 m. long or less, the young shoots, leaves and racemes sparingly and loosely pubescent. Leaves thin, deeply 5–7-lobed, resinous-dotted beneath, 5–20 cm. wide, cordate at base, the lobes ovate to ovate-lanceolate, acute, sharply irregularly serrate, their slender petioles often as long as the blades or longer; racemes narrow, slender, erect, loosely-flowered, often 2 dm. long, commonly longer than the leaves; pedicels filiform, pubescent, erect-spreading, 1 cm. long or less; bracts spatulate, half as long as the pedicels, or the lower longer, foliaceous, and often lobed; hypanthium urceolate-crateriform, resinous-punctate; sepals green, spreading, veiny, ovate-oblong, obtuse, 3–4 mm. long; petals minute, obtuse; berry resinous-punctate, globose to globose-oblong, about 1 cm. in diameter, black with a whitish bloom when mature.

TYPE LOCALITY: At the confluence of the Columbia River with the ocean.
DISTRIBUTION: Along the coast, eastern Alaska to northern California.
ILLUSTRATIONS: Bot. Mag. *pl. 7419*; Mém. Soc. Genève **35**[3]: *f. 69*.

6. **Ribes hudsonianum** Richards. Bot. App. Frankl. Journey ed. 2. 6. 1824.

Ribes hudsonianum canadense Jancz. Mém. Soc. Genève **35**: 346. 1907.

Branches erect, unarmed. Petioles slender, 3–10 cm. long; leaves broader than long, 3–10 cm. wide, more or less pubescent and resinous-dotted beneath, cordate or subcordate, 3–5-lobed, the lobes ovate, obtuse or acutish, coarsely dentate; racemes loosely-flowered, 3–6 cm. long, pedicels 4 mm. long or less; flowers white, 4–6 mm. broad; ovary waxy-dotted, smooth; hypanthium crateriform; sepals oval, obtuse, spreading; stamens short, not exserted; bracts setaceous, usually equaling or nearly equaling the pedicels; fruit globular, black, glabrous, 5–10 mm. in diameter.

TYPE LOCALITY: Wooded country in latitude 57°, subarctic America.
DISTRIBUTION: Hudson Bay to central Alaska, and southward in the interior of British America to eastern British Columbia and Ontario, entering the United States in northeastern Minnesota.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1873*; Mém. Soc. Genève **35**[3]: *f. 76*.

7. **Ribes petiolare** Dougl. Trans. Hort. Soc. London **7**: 514. 1830.

Ribes hudsonianum petiolare Jancz. Mém. Soc. Genève **35**: 346. 1907.

Unarmed; foliage glabrous, or slightly pubescent when young. Leaves thin, resinous-dotted beneath, cordate, mostly 5-lobed, the lobes ovate, acute, sharply irregularly serrate, their petioles slender, often longer than the blades; racemes erect, 5–12 cm. long, rather densely-flowered or the lower flowers distant; pedicels filiform, 3–6 mm. long, mostly much longer than the very small pointed bracts; hypanthium hemispheric-crateriform, and like the ovary resinous-dotted; sepals white, ovate, obtuse, puberulent, about 7 mm. long; berry subglobose, black without bloom, about 1 cm. in diameter.

TYPE LOCALITY: Western base of the Rocky Mountains, lat. 48° to 52°.
DISTRIBUTION: From the interior of British Columbia to Montana, and southward to Wyoming, Utah, and eastern Oregon.

8. **Ribes vulgare** Lam. Encyc. **3**: 47. 1789.

Ribes vulgare hortense Lam. Encyc. **3**: 48. 1789.
Ribes acerifolium K. Koch, Dendr. **1**: 649; hyponym. 1869.
Ribes hortense Hedlund, Bot. Notiser **1901**: 94. 1901.

An unarmed shrub, 1.5 m. high or less, the stems nearly erect, the young twigs, petioles, and under leaf-surfaces more or less pubescent and with stalked glandular hairs. Leaves thin, suborbicular in outline, cordate or subcordate at the base, little if at all decurrent on the petiole, dark-green and with some scattered hairs above, pale and pubescent at least on the veins beneath, 3-lobed or 5-lobed, 7 cm. wide or less, the lobes acutish, serrate-dentate, the slender petioles often as long as the blades or longer; racemes drooping, several–many-flowered, as long as the leaves or shorter, sparingly pubescent; pedicels filiform, usually glandless, 3–5 mm. long, much longer than the ovate bracts; hypanthium saucer-shaped, green or slightly purple; sepals green, obtuse, spreading, 2–3 mm. long; petals yellowish-green; ovary glabrous; filaments very short, the anther-sacs separated by a broad connective, usually widely divergent; berry globose, red, shining, 1 cm. in diameter or less.

TYPE LOCALITY: France.
DISTRIBUTION: Escaped from cultivation, Massachusetts to Ontario and Wisconsin, south to Virginia, also Oregon and British Columbia.
ILLUSTRATIONS: Bot. Notiser **1901**: 156, *f. 1, 2*; Cycl. Am. Hort. *f. 2118*; C. K. Schneid. Handb. Laubh. **1**: *f. 259 a–h*; Mém. Soc. Genève **35**[3]: *f. 18–20*; Britt. & Brown, Ill. Fl. *f. 1875* (as *R. rubrum*).

9. **Ribes triste** Pall. Nova Acta Acad. Petrop. **10**: 378. 1797.

Ribes albinervium Michx. Fl. Bor. Am. **1**: 110. 1803.
Ribes rubrum A. Gray, Man. 143. 1848. Not *R. rubrum* L. 1753.
Ribes rubrum subglandulosum Maxim. Bull. Acad. St. Petersb. **19**: 261. 1874.
Ribes rubrum albinervium MacM. Metasp. Minn. Valley 279. 1892.
Ribes ciliosum Howell, Fl. NW. Am. **1**: 208. 1898.
Ribes migratorium Suksd. Deuts. Bot. Monats. **18**: 86. 1900.
Ribes triste albinervium Fernald, Rhodora **9**: 4. 1908.

Unarmed, the stems creeping or ascending, 1 m. high or less, the young shoots and herbage sparingly pubescent and with few glandular hairs, or the under leaf-surface sometimes manifestly pubescent. Leaves thin, reniform-orbicular in outline, 6–10 cm. wide, usually 3-lobed, sometimes 5-lobed, dark-green and commonly quite glabrous above, pale, with conspicuous veins, and glabrate or pubescent beneath, the lobes acute or obtuse, coarsely dentate-serrate, the base cordate with a wide sinus, or rarely subtruncate, usually conspicuously decurrent on the petiole, the petioles mostly somewhat shorter than the blades, more or less pubescent, mostly glandular-ciliate toward the base; racemes drooping, somewhat glandular, several-flowered, commonly shorter than the leaves; pedicels 3–8 mm. long, much longer than the ovate bracts, usually bearing a few glands; flowers purple or purplish-tinged; hypanthium saucer-shaped; sepals obtuse, spreading; petals red or reddish; anther-sacs contiguous, parallel or nearly so; ovary glabrous; berry smooth, red, 6–8 mm. in diameter.

TYPE LOCALITY: Siberia.
DISTRIBUTION: Newfoundland to Alaska, and south to New Jersey, Michigan, South Dakota, and Oregon; also in northern Asia.
ILLUSTRATION: Mém. Soc. Genève **35**[3]: *f. 24*.

10. **Ribes erythrocarpum** Coville & Leiberg, Proc. Biol. Soc. Wash. **10**: 132. 1896.

Branches trailing, rooting, unarmed, the ascending or upright shoots 2 dm. high or less. Foliage and inflorescence finely pubescent and glandular, the glands short-stalked; leaves orbicular in outline or slightly wider than long, thin, cordate, 5 cm. wide or less, rather deeply 3–5-lobed, the lobes obtuse, irregularly crenate and serrulate, the slender petioles mostly somewhat shorter than the blades; racemes erect, 6–20-flowered; bracts lanceolate to obovate, persistent, about as long as the nearly erect pedicels; hypanthium short; sepals spreading, about 3 mm. long, obtuse or acutish, yellow to salmon-colored, puberulent without; petals spatulate, glabrous, colored like the sepals and one third to one half their length; fruiting racemes erect, usually extending above the leaves; berry subpyriform to globose, scarlet, 8–10 mm. long, without bloom, beset with short glandular hairs.

TYPE LOCALITY: Cañon of Pole Bridge Creek, south of Crater Lake, Cascade Mountains, Oregon.

DISTRIBUTION: Cascade Mountains of southern Oregon, in Klamath, Jackson, and Douglas counties, 1500 to 2250 meters altitude.

ILLUSTRATION: Mém. Soc. Genève 35^3: *f. 49*.

11. **Ribes acerifolium** Howell, Erythea **3**: 34. 1895.

Ribes Howellii Greene, Erythea **4**: 57. 1896.

Stems unarmed, erect, about 1 m. high. Leaves rather broader than long, 4–8 cm. wide, cordate, thin, 3–5-lobed, glabrous above, puberulent, at least on the veins, and more or less resinous-dotted beneath, the lobes ovate, acutish or obtuse, irregularly serrate, the petioles about as long as the blades or shorter, puberulent, dilated and glandular-ciliate at the base; racemes puberulent and often glandular, reflexed, several-flowered, about as long as the leaves; pedicels curved upward, usually nearly as long as the lanceolate glandular bracts; hypanthium short-urceolate; sepals obovate, obtuse, 3–4 mm. long, about 3 times as long as the red spatulate petals; ovary with stalked glands; berry blue-black, with a bloom, glandular, about 6–10 mm. in diameter.

TYPE LOCALITY: Mount Hood, Oregon.

DISTRIBUTION: Northern Oregon to southern British Columbia, at an elevation of 1500 to 2250 meters, in the Cascade Mountains and outlying peaks, and in the Olympic Mountains.

ILLUSTRATION: Mém. Soc. Genève 35^3: *f. 50*.

12. **Ribes glandulosum** Grauer, Pl. Min. Cog. 2. 1784.

Ribes prostratum L'Her. Stirp. Nov. 3. 1785.
Ribes rigens Michx. Fl. Bor. Am. 1: 110. 1803.
Ribes trifidum Michx. Fl. Bor. Am. 1: 110. 1803.

Branches decumbent or spreading, unarmed, 1 m. long or less. Leaves thin, fetid, glabrous above, puberulent on the veins beneath, orbicular in outline or somewhat broader than long, 3–8 cm. wide, cordate, deeply 5–7-lobed, the lobes ovate, acute or acutish, irregularly incised-serrate, the slender petioles about as long as the blades, their dilated bases often glandular-ciliate; racemes 8–12-flowered, ascending, shorter than the leaves, puberulent; pedicels nearly filiform, puberulent and more or less glandular, much longer than the narrow glandular bracts; hypanthium short-campanulate; sepals 2–2.5 mm. long, pubescent without; petals rhombic with a broad claw, much longer than broad; ovary glandular-hispid; berry red, glandular-bristly, 6–8 mm. in diameter.

TYPE LOCALITY: Labrador.

DISTRIBUTION: Newfoundland to Mackenzie, northern interior British Columbia, Athabasca, Saskatchewan, Manitoba, Wisconsin, and North Carolina.

ILLUSTRATIONS: L'Her. *loc. cit. pl. 2*; Mém. Soc. Genève 3^2: *pl. 2, f. 12*; Loud. Arb. *f. 731*; Schmidt, Arb. *pl. 95*; Britt. & Brown, Ill. Fl. *f. 1872*; Card, Bush Fruits *f. 96*; Mém. Soc. Genève 35^3: *f. 46, 47*.

13. **Ribes coloradense** Coville, Proc. Biol. Soc. Wash. **14**: 3. 1901.

Ribes laxiflorum coloradense Jancz.; Vilmorin & Bois, Frutic. Vilm. Cat. Prim. 137. 1904.

Stems decumbent or procumbent, unarmed, the young shoots puberulent. Leaves thin, slightly broader than long, 8 cm. wide or less, rather deeply cordate, mostly 5-lobed,

glabrous above, sometimes sparingly pubescent on the veins beneath and with minute sessile glands, the lobes ovate or triangular-ovate, obtuse or acutish, irregularly crenate-dentate, the rather stout petioles as long as the blades or shorter, puberulent, the dilated base sparingly glandular-bristly; racemes erect, minutely pubescent and glandular, 6–12-flowered; pedicels 4–15 mm. long, recurved-spreading, much longer than the linear-lanceolate bracts, or the lowest bract sometimes foliaceous; hypanthium very short; sepals greenish or purplish, 3–4 mm. long, spreading, glandular-hairy without; petals purplish, fan-shaped, usually broader than long, 1.5–2 mm. broad; ovary glandular-pubescent; berry black without bloom, sparingly glandular-pubescent, about 10 mm. in diameter.

TYPE LOCALITY: Marshall Pass, Colorado (3150 meters).
DISTRIBUTION: Mountains of Colorado and northern New Mexico, at 3000–3600 meters elevation.
ILLUSTRATION: Mém. Soc. Genève 35³: *f. 48.*

14. **Ribes laxiflorum** Pursh, Fl. Am. Sept. 731. 1814.

Ribes americanum Pall. Fl. Ross. 1²: 34. 1788. Not *R. americanum* Mill. 1768.
Ribes affine Dougl.; Bong. Mém. Acad. St. Petersb. VI. 2: 138. 1832. Not *R. affine* H.B.K. 1823.
Ribes prostratum laxiflorum Loud. Arb. 981. 1836.
Ribes laxiflorum inerme Kurtz, Bot. Jahrb. 19: 379. 1894.

Stems decumbent, unarmed, the young shoots puberulent. Leaves nearly orbicular in outline, 5–10 cm. wide, thin, cordate, deeply 5-lobed, glabrous above, somewhat pubescent beneath, at least when young, and the margin sparingly ciliate, the lobes ovate, acute or acutish, sharply or rather bluntly serrate, the rather slender petioles about as long as the blades, puberulent or pubescent, the dilated basal part glandular-pubescent; racemes erect-spreading, 6–12-flowered, pubescent and glandular, as long as the leaves or shorter; pedicels 6–12 mm. long, much longer than the lanceolate bracts; sepals 3–4 mm. long, not glandular-pubescent, obtuse; hypanthium very short; ovary pubescent and glandular-hairy, or the glandular hairs rarely obsolete; petals fan-shaped, little, if any, broader than long; berry black or dark-purple, glandular-pubescent, glaucous.

TYPE LOCALITY: Northwest coast of North America.
DISTRIBUTION: Northern California to Alaska near the coast, in British Columbia extending eastward to the Selkirk and Rocky mountains; also in eastern Asia.
ILLUSTRATIONS: C. K. Schneid. Handb. Laubh. 1: *f. 268 b*; Mém. Soc. Genève 35³: *f. 45.*

15. **Ribes cereum** Dougl. Trans. Hort. Soc. London 7: 512. 1830.

Cerophyllum Douglasii Spach, Hist. Vég. 6: 153. 1838.
Ribes balsamiferum Kellogg, Proc. Calif. Acad. 2: 94. 1861.
Ribes cereum farinosum Jancz. Mém. Soc. Genève 35: 338. 1907.

A much-branched shrub, 1 m. high or less, unarmed, the young shoots finely pubescent. Leaves reniform-orbicular, 1–4 cm. wide, cordate, subcordate, or truncate at the base, puberulent and somewhat glandular, or the upper surface nearly or quite glabrous, 3–5-lobed, the lobes obtuse, crenate or crenulate, the puberulent petioles as long as the blades or shorter; racemes short, compact, puberulent, few-flowered, pendulous, little, if at all, longer than the leaves; bracts cuneate-obovate, obtuse or truncate, lobed or dentate, pubescent and glandular, 4–7 mm. long, much longer than the nearly obsolete pedicels; ovary glandular or smooth; hypanthium tubular, pubescent, 6–8 mm. long, 3 or 4 times as long as thick, white, greenish, or cream-colored; sepals ovate, about 2 mm. long; anthers with a cup-shaped apical gland; petals nearly orbicular, minute; styles usually hairy above; berry bright-red, 6–7 mm. in diameter.

TYPE LOCALITY: On decayed granite or schist along the Columbia River, from the Great Falls [the Dalles] to the source of that stream.
DISTRIBUTION: California to Washington and the interior of British Columbia, western Montana, Idaho, Nevada, southwestern Utah, and northwestern Arizona.
ILLUSTRATIONS: Bot. Reg. *pl. 1263*; Bot. Mag. *pl. 3008*; Loud. Arb. *f. 737*; Kellogg, *loc. cit. f. 25*; Jancz. *loc. cit. f. 68.*

16. **Ribes reniforme** Nutt. Jour. Acad. Phila. 7: 25. 1834.

Ribes cereum pedicellare A. Gray, Bot. Calif. 1: 207. 1876.

A robust shrub, commonly 1.5–2.5 m. high, the one-year-old twigs glabrous and usually red-brown. Leaf-blades reniform-orbicular, commonly 2.5–4 or even 5 cm. wide, cordate,

subcordate, or even truncate at the base, 3–5-lobed, crenate-dentate, with sessile exudating glands on both surfaces, devoid of pubescence, the petioles glabrous and of about the same length as the blades; racemes commonly 4–7-flowered, nearly as long as the leaves, the rachis glabrous; bracts light-green, about 5 mm. long, rhombic-lanceolate to rhombic-obovate, entire or nearly so, glandular but not pubescent; pedicels 2–5 mm. long, glandular but not pubescent; ovary with short-stalked glands; hypanthium cream-white, about 8 mm. long and 2.5 mm. in diameter, with stalked glands but no pubescence; sepals colored like the hypanthium, about 2 mm. in length, oblong, recurved; petals white, reniform-orbicular, half the length of the sepals or less, equaled or slightly exceeded by the anthers; style usually glabrous; berry red, globose, about 6–8 mm. in diameter.

TYPE LOCALITY: Sources of the Columbia.
DISTRIBUTION: Western Montana to the eastern part of the Blue Mountain region of Oregon and Washington.

17. **Ribes inebrians** Lindl. Bot. Reg. *pl. 1471.* 1832.

Cerophyllum inebrians Spach, Hist. Vég. **6**: 154. 1838.
Ribes Späthianum Koehne, Gartenflora **48**: 338. 1899.
Ribes cereum viridior Cockerell, Nature **66**: 174. 1902.
Ribes Churchii Nelson & Kennedy, Proc. Biol. Soc. Wash. **19**: 36. 1906.
Ribes pumilum Nutt.; Rydb. Fl. Colo. 177. 1906.
Ribes inebrians maius Jancz. Mém. Soc. Genève **35**: 336. 1907.
Ribes inebrians Späthianum Jancz. Mém. Soc. Genève **35**: 336. 1907.

Similar to *R. cereum*, the twigs and foliage almost identical with those of that species. Racemes few-flowered, pendulous, mostly shorter than the leaves, puberulent and usually glandular; bracts rhombic, acute or obtuse, 5–7 mm. long, much longer than the pedicels, entire-margined or occasionally with a lateral lobe or tooth, usually glandular-ciliate; hypanthium tubular, 5–8 mm. long, 3 to 4 times longer than thick, usually pink or pinkish; sepals ovate, acutish, about 2 mm. long; ovary with stalked glands; styles usually glabrous; berry bright-red, glandular or rarely smooth, 6–8 mm. in diameter.

TYPE LOCALITY: Not given; described from cultivated plants.
DISTRIBUTION: Northeastern Nevada, eastern Idaho, and Montana to South Dakota, western Nebraska, New Mexico, Arizona, and the Sierra Nevada of middle California.
ILLUSTRATIONS: Lindl. *loc. cit.;* Loud. Arb. *f. 736;* Britt. & Brown, Ill. Fl. *f. 1876* (as *R. cereum*); Card, Bush Fruits *f. 101* (as *R. cereum*); Jancz. *loc. cit. f. 67.*

18. **Ribes mescalerium** Coville, Proc. Biol. Soc. Wash. **13**: 196. 1900.

Ribes inebrians mescalerium Jancz. Mém. Soc. Genève **35**: 336. 1907.

An erect, unarmed, much-branched shrub, 1–2 m. high, the young twigs glandular-hairy. Leaves reniform-orbicular in outline, 1.5–3.5 cm. wide, mostly somewhat wider than long, broadly cuneate to cordate at the base, 3–5-lobed, glandular-pubescent and usually with some simple hairs on both surfaces, the lobes obtuse, crenate-dentate, the petioles as long as the blades or shorter, pubescent and often glandular; racemes pendulous, about as long as the leaves, closely 2–4-flowered, pubescent and glandular; bracts obovate, dentate toward the obtuse apex, 3–7 mm. long, much longer than the pedicels; hypanthium 5–6 mm. long, about 3 mm. thick, nearly cylindric, glandular-pubescent, greenish-white, about twice as long as the ovate-oblong sepals; petals rounded, white, 2 mm. long; style glabrous; berry globose, sparingly glandular-pubescent, black, without bloom, 10 mm. in diameter or less.

TYPE LOCALITY: Fresnal, Otero County, New Mexico.
DISTRIBUTION: Sacramento and Guadalupe mountains of southeastern New Mexico and western Texas.

19. **Ribes ceriferum** Coville & Rose, in Rose, Contr. U. S. Nat. Herb. 8: 298. 1905.

A shrub 1–3 m. high, the bark of older branches dark-brown, that of the somewhat pubescent and glandular young twigs pale-brown. Leaves thin, suborbicular in outline, 2–5 cm. broad, 3-lobed, glabrous or very nearly so above, puberulent on the veins beneath, both surfaces bearing sessile glands, the lobes rounded, crenate-dentate, the slender pubes-

cent petioles bearing short-stalked glands; racemes as long as the leaves or shorter, 3–10-flowered; peduncles puberulent and with short-stalked glands; bracts obovate, pubescent and glandular-ciliate, 3–5 mm. long; pedicels filiform, 6–10 mm. long; ovary with a few stalked glands; hypanthium 3–4 mm. long, pubescent, deep-red, slightly exceeded by the deep-red pubescent sepals; stamens half the length of the sepals, about as long as the red petals, the oblong anthers tipped by a depressed gland; berry black, glabrous.

TYPE LOCALITY: Mount Mohinora, Chihuahua.
DISTRIBUTION: Chihuahua and Durango.

20. **Ribes neglectum** Rose, Contr. U. S. Nat. Herb. 8: 298. 1905.

An unarmed shrub, 1.5 m. high or less, the young branches finely pubescent and with some glandular hairs. Leaves rather broader than long, 2–4 cm. wide, subcordate or nearly truncate at the base, rather firm in texture, 3–5-lobed, dark-green and with scattered stiff glandular hairs above, paler and with both simple and glandular pubescence on the veins beneath, the lobes short, rounded, crenate-dentate, the strongly glandular-pubescent petioles shorter than the blades; racemes spreading, or in fruit pendulous, 6–12-flowered, about as long as the leaves, glandular-pubescent; pedicels 2–6 mm. long; bracts ovate, acute, rather longer than the pedicels; hypanthium greenish, pubescent, 2–3 mm. long, a little shorter than the ovate sepals; petals broad, crenate; ovary with scattered gland-tipped hairs, otherwise smooth; berry smooth, black, 8–10 mm. in diameter.

TYPE LOCALITY: Alvarez, San Luis Potosi.
DISTRIBUTION: Type locality and vicinity.

21. **Ribes Pringlei** Rose, Contr. U. S. Nat. Herb. 8: 298. 1905.

Ribes campanulatum H. & B.; R. & S. Syst. Veg. 5: 500. 1819. Not *R. campanulatum* Moench, 1794.

An unarmed shrub, with glabrous shining branches, the young twigs somewhat puberulent. Leaves about as broad as long, thin, cordate at the base, 8 cm. wide or less, 3-lobed or rarely 5-lobed, dark-green and with scattered stiff glandular hairs above, pale-green and with similar hairs on the veins beneath, the ovate acutish or obtuse lobes rather finely and sharply serrate, the petioles glandular-pubescent, mostly shorter than the blades; racemes drooping, 8–12-flowered, longer than the leaves, sometimes 12 cm. long, glandular-pubescent; pedicels 6–8 mm. long; bracts obovate-oblong, obtuse, entire, glandular-pubescent and ciliate, mostly longer than the pedicels, the lower sometimes 1.5 cm. long; hypanthium tubular-campanulate, greenish-purple, sparingly glandular-pubescent, 6–8 mm. long, 3.5–4.5 mm. thick; sepals lanceolate, acute, 4–5 mm. long, sparingly glandular-pubescent; petals about half as long as the sepals, about as broad as long; ovary glandular-pubescent.

TYPE LOCALITY; Sierra de Ajusco, Federal District, Mexico.
DISTRIBUTION: Type locality and vicinity.
ILLUSTRATION: Mém. Soc. Genève 35[3]: *f. 60, 61.*

22. **Ribes viscosissimum** Pursh, Fl. Am. Sept. 163. 1814.

Coreosma viscosissima Spach, Ann. Sci. Nat. II. 4: 23. 1835.
Ribes viscosissimum Purshii Jancz. Mém. Soc. Genève 35: 328. 1907.

An unarmed shrub, 1 m. high or less, the young shoots and inflorescence puberulent and glandular-pubescent. Leaves reniform-orbicular in outline, mostly 5-lobed, pubescent and glandular-pubescent on both sides, 5–8 cm. broad, the lobes short, broad, rounded, irregularly crenate-dentate, the densely glandular-pubescent petioles mostly rather shorter than the blades and much dilated at the base; racemes spreading or ascending, few–several-flowered, often as long as the leaves or longer; pedicels 1 cm. long or less, usually as long as or a little longer than the herbaceous oblanceolate entire or minutely erose bracts; hypanthium cylindric-campanulate, 6–7 mm. long, greenish or pinkish; sepals greenish-white or pinkish, about as long as the hypanthium, oblong, obtuse or rarely acute, sparingly, if at all, glandular; ovary glandular-pubescent; berry black, without bloom, more or less glandular-bristly, about 1 cm. in diameter, almost dry.

TYPE LOCALITY: Rocky Mountains.
DISTRIBUTION: Montana to British Columbia, Colorado, and California.
ILLUSTRATIONS: Hook. Fl. Bor. Am. *pl. 76;* Loud. Arb. *f. 738;* Card, Bush Fruits *f. 103;* Jancz. *loc. cit. f. 62.*

23. **Ribes Hallii** Jancz. Bull. Acad. Cracovie **1906**: 9. 1906.

Ribes viscosissimum Hallii Jancz. Mém. Soc. Genève **35**: 328. 1907.

Similar to *R. viscosissimum*, the young shoots glandular-pubescent. Leaves rather firm in texture, reniform-orbicular, 3–5-lobed, deeply cordate at the base, 2–5 cm. broad, pubescent and with stalked glands, the lobes short, rounded, crenate or crenulate, the petioles pubescent and with stalked glands; racemes nodding, as long as the leaves or shorter, the rather stout peduncles pubescent and with stalked glands, 4–10-flowered; bracts oblong-lanceolate to obovate, 8–12 mm. long, pubescent and with stalked glands, mostly longer than the pedicels; ovary glabrous, rarely with a few glands; hypanthium cylindric-campanulate, pubescent, greenish, 7–8 mm. long, 5–6 mm. in diameter; sepals usually purple-margined, shorter than the hypanthium; petals white, about half as long as the sepals and equaling the stamens; berry covered with a light-blue bloom.

TYPE LOCALITY: Northern California.
DISTRIBUTION: Southern Oregon, northern California, and western Nevada. Perhaps a subspecies of *R. viscosissimum*.

24. **Ribes Dugesii** Greenman, Proc. Am. Acad. **39**: 78. 1903.

A much-branched shrub, the young branches with glabrous or slightly pubescent reddish-brown bark. Leaves ovate-orbicular in outline, shallowly and bluntly 3–5-lobed, crenate-dentate, obtuse to cordate at base, sparingly glandular on both sides, the petioles 1–3 cm. long, pubescent, and with short-stipitate glands, 3–6 cm. long, bearing several flowers; bracts herbaceous, obovate, toothed, stipitate-glandular, 3–4 mm. long; ovary smooth; hypanthium subcampanulate, about 2 mm. long, white or pinkish; sepals nearly white, oblong, about 3 mm. long; petals subreniform, entire, white, about 2 mm. long and wide; stamens as long as the petals, the filaments about equaling the anthers.

TYPE LOCALITY: Mountains of Santa Rosa, near Guanajuato, Mexico.
DISTRIBUTION: Known only from the type locality.

25. **Ribes Orizabae** Rose, Contr. U. S. Nat. Herb. **8**: 339. 1905.

Unarmed; young shoots, inflorescence, petioles, and leaf-margins somewhat glandular-pubescent. Leaves broadly ovate or suborbicular in outline, thin, cordate at the base, rather deeply 3-lobed, or some of them 5-lobed, dark-green and glabrous above, dull-green and glandular-pubescent on the veins beneath, the lobes acute, sharply and irregularly serrate; petioles as long as the blades or shorter; racemes spreading or pendulous, 8–12-flowered; pedicels 5–8 mm. long; bracts lanceolate, acute, glandular, equaling the pedicels, or longer, the lower ones serrate; hypanthium short-cylindric or slightly urceolate, about 4 mm. long, pubescent; sepals pubescent, spreading, somewhat shorter than the hypanthium; ovary glabrous.

TYPE LOCALITY: Orizaba, Mexico.
DISTRIBUTION: Known only from the type locality.

26. **Ribes affine** H.B.K. Nov. Gen. & Sp. **6**: 60. 1823.

Ribes multiflorum H.B.K. Nov. Gen. & Sp. **6**: 60. 1823. Not *R. multiflorum* Willd. 1813.
Ribes Kunthii Berland. Mém. Soc. Genève **3²**: 60. 1826.
Ribes mexicanum Spreng. Syst. **4**: Cur. Post. 100. 1827.
Coreosma affinis Spach, Ann. Sci. Nat. II. **4**: 24. 1835.
Coreosma multiflora Spach, Ann. Sci. Nat. II. **4**: 24. 1835.
Ribes Altamirani Jancz. Bull. Acad. Cracovie **1906**: 10. 1906. (As to *Pringle 6904*.)

Unarmed, 1–3 m. high, the young twigs puberulent or glabrous. Leaves thin, broadly ovate to orbicular in outline, often rather longer than broad, 4.5 cm. wide or less, 3-lobed or sometimes 5-lobed, sparingly pubescent above but not glandular, even on the margin, pubescent on the veins beneath, the lobes ovate, mostly acute, irregularly dentate, the slender petioles as long as the blades or longer, puberulent, the dilated base bearing a few glandular hairs; racemes pendulous, 6–12-flowered, shorter than the leaves; pedicels pubescent, 5–8 mm. long, longer than or exceeded by the pubescent, oblong-lanceolate, somewhat glandular-hairy bracts; hypanthium campanulate, 2–3 mm. long; sepals oblong,

acutish, reflexed, 3–4 mm. long, pubescent without; ovary glabrous; petals nearly orbicular, 1.5 mm. long; berry blue-black, smooth, about 8 mm. in diameter.

TYPE LOCALITY: Near Moran, Mexico.
DISTRIBUTION: States of Hidalgo and Queretaro.
ILLUSTRATION: Mém. Soc. Genève 35^3: *f. 65.*

27. **Ribes rugosum** Coville & Rose, in Rose, Contr. U. S. Nat. Herb. **8**: 300. 1905.

Ribes grande Rose, Contr. U. S. Nat. Herb. 8: 339. 1905.

An unarmed sbrub, 2–3.5 m. high, the young shoots glabrous or puberulent, and with sessile glands. Leaves suborbicular in outline, 3–5 cm. wide, 3-lobed or sometimes 5-lobed, rounded, truncate, or cordate at base with an open sinus, glabrous above, pubescent and almost glandless beneath, the puberulent and glandular petioles mostly shorter than the blades, the lobes obtuse, irregularly crenate-dentate; base of the petiole sometimes bearing stalked glands; racemes drooping, 7–12-flowered, pubescent; pedicels 3–6 mm. long, pubescent, mostly shorter than the oblong-lanceolate, pubescent, and glandular bracts; hypanthium pubescent, short-cylindric, about 3.5 mm. long; sepals oblong, greenish, obtuse, 2.5–3 mm. long; petals orbicular, clawed, about 2 mm. long; ovary glabrous; berry globose-oblong, smooth, bluish-black.

TYPE LOCALITY: Santa Fé, Valley of Mexico.
DISTRIBUTION: States of Mexico and Puebla.
ILLUSTRATION: Contr. U. S. Nat. Herb. 8: *pl. 66.*

28. **Ribes ciliatum** H. & B.; R. & S. Syst. Veg. **5**: 500. 1819.

Ribes jorullense H.B.K. Nov. Gen. & Sp. 6: 61. 1823.

An unarmed shrub, 3–5 m. high, the stems sometimes 13 cm. in diameter, the young shoots glandular-pubescent. Leaves nearly orbicular in outline, 9 cm. wide or less, deeply cordate at the base with a usually closed sinus, 3–5-lobed, the upper surface glabrate or with some scattered glandular hairs, the under surface rather densely glandular-pubescent, the lobes acute or acutish, finely irregularly dentate, the petioles as long as the blades or shorter, densely glandular-pubescent; racemes pendulous, about as long as the leaves, about 10-flowered, finely pubescent and glandular; pedicels 4–7 mm. long; bracts oblong-lanceolate, mostly longer than the pedicels, glandular; hypanthium pubescent, short-cylindric, 4–5 mm. long; sepals oblong, obtusish, greenish-white, 3–4 mm. long, pubescent; ovary glabrous; berry globose, glabrous, about 8 mm. in diameter.

TYPE LOCALITY: Not cited.
DISTRIBUTION: High mountains of central and southern Mexico.

29. **Ribes chihuahuense** Britton, Torreya **7**: 102. 1907.

Branches smooth, gray. Leaves ovate to suborbicular in outline, the blades 2–2.5 cm. long, dull dark-green above, pale-green beneath, broadly cuneate to subtruncate at the base, 3-lobed, glabrous on both sides, papillose above when young, sparingly ciliate on the margin, the lobes few-toothed, acutish or obtuse; petioles as long as the blades or shorter, pubescent when young; racemes 3–5-flowered, a little longer than the leaves, the axis densely pubescent; flowers sessile or very nearly so; bracts ovate-elliptic, obtuse, ciliate, 5–7 mm. long; hypanthium nearly cylindric, 1 cm. long; sepals oblong, obtuse, 6–7 mm. long; petals ovate-oblong, acute, a little more than half as long as the sepals.

TYPE LOCALITY: Chihuahua, Mexico.
DISTRIBUTION: Known only from the type locality.

30. **Ribes aureum** Pursh, Fl. Am. Sept. 164. 1814.

Ribes jasminiflorum Agardh, Sv. Landtbr. Akad. Ann. **9**: 143. 1823.
Ribes flavum Berland. Mém. Soc. Genève 3^2: 60. 1826.
Ribes tenuiflorum Lindl. Trans. Hort. Soc. London **7**: 242. 1828.
Ribes inodorum Link, Handb. **2**: 7. 1831.
Chrysobotrya intermedia Spach, Ann. Sci. Nat. II. **4**: 19. 1835.
Chrysobotrya Lindleyana Spach, Ann. Sci. Nat. II. **4**: 20. 1835.
Ribes aureum tenuiflorum Torr. Pacif. R. R. Rep. **4**: 88. 1857.
Ribes leiobotrys Koehne, Deuts. Dendr. 192. 1893.
Ribes aureum chrysococcum Rydb. Fl. Neb. **21**: 71. 1895.
Ribes aureum leiobotrys Zabel, Handb. Laubh. Deuts. Dendr. Ges. 143. 1903.

Glabrous throughout or foliage and inflorescence pubescent. Leaves reniform-orbicular to obovate in outline, firm in texture, variously lobed and dentate, cuneate, rounded, or subcordate at the base, 5 cm. wide or less, the petioles about as long as the blades; racemes 5–15-flowered, 3–7 cm. long; bracts oblong to obovate, 5–12 mm. long, mostly longer than the pedicels; hypanthium 6–10 mm. long; sepals 5–8 mm. long; petals oblong, erose, about 2 mm. long; berry globose, red, black, or yellow, 6–8 mm. in diameter.

TYPE LOCALITY: Banks of the Columbia River.
DISTRIBUTION: Washington and Oregon to Assiniboia, Montana, and the Black Hills of South Dakota, south to Nevada, California, Arizona, and New Mexico.
ILLUSTRATIONS: Agardh, *loc. cit.*; Spach, *loc. cit. pl. 1, f. B, C.*; Spach, Hist. Vég. *pl. 47, f. 2*; Bot. Reg. *pl. 1274*; Mém. Accad. Torino 33: *pl. 1, f. A*; Mém. Soc. Genève 3²: *pl. 2, f. 24* (as *R. ebracteatum*); Loud. Arb. *f. 744*; Card, Bush Fruits *f. 109*.

31. **Ribes gracillimum** Coville & Britton, sp. nov.

Glabrous or very nearly so throughout, sometimes with a few hairs on the petiole-bases, much branched, the young twigs gray, the older branches brown. Leaves ovate to suborbicular in outline, at flowering time not over 2 cm. wide, rather thin in texture, 3-lobed and sparingly dentate, mostly cuneate, but some of them subtruncate at the base, the slender petioles as long as the blades or shorter, often bearing very small sessile glands; racemes 5–15-flowered, 5 cm. long or less, short-peduncled; bracts ovate to elliptic, 5–9 mm. long, mostly equaling or longer than the pedicels; hypanthium 6–8 mm. long; sepals oval, 3–4 mm. long; petals obovate, erose, about two thirds as long as the sepals.

Type collected at Stanford University, California, April, 1901, *A. D. E. Elmer 3025*.
DISTRIBUTION: Central and southern California.

32. **Ribes odoratum** Wendl. in Bartl. & Wendl. Beitr. **2**: 15. 1825.

Ribes longiflorum Nutt.; Lindl. Bot. Reg. **2**: sub *pl. 125*, as synonym. 1816.
Ribes aureum villosum Berland. Mém. Soc. Genève 3²: 60. 1826.
Ribes flavum Colla, Mém. Accad. Torino 33: 114. 1828. Not *R. flavum* Berland. 1826.
Ribes aureum praecox Lindl. Trans. Hort. Soc. London **7**: 240. 1828.
Ribes palmatum Thory, Monog. Gen. Gros. 28. 1829.
Ribes fragrans Lodd. Bot. Cab. *pl. 1533*. 1829. Not *R. fragrans* Pall. 1797.
Chrysobotrya revoluta Spach, Ann. Sci. Nat. II. **4**: 19. 1835.
Ribes Oregoni Herincq, Hortic. Fr. **1872**: 227. *pl. 8*. 1872.
Ribes aureum melanococcum Jancz. Mém. Soc. Genève **35**: 334. 1907.

A shrub 2 m. high or less, the bark of old branches gray, the young shoots pubescent. Leaves firm in texture, ovate to reniform-orbicular in outline, cuneate to truncate at the base, 2–5 cm. broad, deeply 3–5-lobed and coarsely dentate or crenate-dentate, glabrate on both sides, mostly longer than the pubescent petioles; racemes mostly 4–8-flowered, as long as the leaves or longer, the rachis pubescent; bracts ovate to oval, foliaceous, longer than the pubescent or rarely glabrous pedicels, the lower sometimes 1.5 cm. long; hypanthium 12–15 mm. long; sepals oblong, 5–6 mm. long; petals 2–3 mm. long, lobed or erose; berry black, globose to oval, about 8 mm. in diameter.

TYPE LOCALITY: North America, near the Missouri River.
DISTRIBUTION: In the Great Plains from South Dakota to Texas; frequently escaped from cultivation elsewhere.
ILLUSTRATIONS: Bot. Reg. *pl. 125*; Mém. Soc. Genève 3²: *pl. 2, f. 23*; Loud. Arb. *f. 742*; Card, Bush Fruits *f. 108*; C. K. Schneid. Handb. Laubh. 1: *f. 265 k–l*; Britt. & Brown, Ill. Fl. *f. 1877* (all as *R. aureum*); Bot. Cab. *pl. 1533*; Spach, *loc. cit. pl. 1, f. A*; Colla, *loc. cit. pl. 1, f. B*.

33. **Ribes fontinale** Britton, sp. nov.

Young twigs puberulent. Leaves rather firm in texture, small, 3 cm. wide or less, mostly 3-lobed, ciliolate, cuneate to subtruncate at the base, the lobes entire or few-toothed, the petioles densely puberulent; racemes 4–7-flowered, 3–4 cm. long, the rachis densely puberulent; bracts oblong to oval, acute, puberulent, foliaceous, 5–8 mm. long, as long as or exceeding the glabrous pedicels; hypanthium very slender, about 9 mm. long; sepals oblong, obtuse, 4 mm. long; petals obovate, obtuse, erose, about 2 mm. long; immature berry globose, 6 mm. in diameter.

Type collected at Semeleque Springs (now Samalayuca), 30 miles south of El Paso (in Chihuahua), *J. M. Bigelow*, Mexican Boundary Survey *400*.

34. **Ribes tortuosum** Benth. Bot. Voy. Sulph. 17. 1844.

Ribes Palmeri Vasey & Rose, Proc. U. S. Nat. Mus. 11 : 529. 1889.

A much-branched unarmed shrub, 1.2 m. high or less, the young shoots and petioles whitish-puberulent, the flowers unfolding before the leaves. Leaves glandular, nearly orbicular in outline, thin, 1.5–3 cm. broad, cordate or subcordate at the base, slightly 5-lobed, finely puberulent on both sides, the lobes rounded, irregularly crenate; racemes 1–2 cm. long, 8–12-flowered, the peduncle short, stiff; pedicels divaricate, stiff, about 2 mm. long, as long as the bracts; hypanthium cylindric, glabrous, or sparingly glandular-hairy, 2–4 mm. long, longer than the oblong to obovate, reflexed-spreading sepals; petals ovate, minute, much shorter than the sepals, barely 1 mm. long, equaling the stamens; ovary glandular-pubescent; berry red, smooth, 6–8 mm. in diameter.

TYPE LOCALITY: San Quentin, Lower California.
DISTRIBUTION: Lower California.

35. **Ribes americanum** Mill. Gard. Dict. ed. 8. no. 4. 1768.

Ribes Dillenii Medic. Beobacht. 1782 : 396. 1783.
Ribes floridum L'Her. Stirp. Nov. 4. 1785.
Ribes nigrum pennsylvanicum Marsh. Arbust. 132. 1785.
Ribes americanum nigrum Moench, Verz. Ausl. Bäume 104. 1785.
Ribes pennsylvanicum Lam. Encyc. 3: 49. 1789.
Ribes campanulatum Moench, Meth. 683. 1795.
Ribes recurvatum Michx. Fl. Bor. Am. 1 : 109. 1803.
Coreosma florida Spach, Ann. Sci. Nat. II. 4 : 22. 1835.
Ribes floridum grandiflorum Loud. Arb. 986. 1836.
Ribes floridum parviflorum Loud. Arb. 986. 1836.

An unarmed shrub, 1–1.5 m. high, the stems erect or nearly so, the young shoots somewhat pubescent and glandular-dotted. Leaves suborbicular or reniform-orbicular in outline, or some of the upper ones ovate, thin, cordate at base with a widely open sinus, or subtruncate, 3–8 cm. wide, 3–5-lobed, glabrous above when mature, more or less pubescent, at least on the veins, and glandular-dotted beneath, the lobes acute, or sometimes obtuse, serrate-dentate, the slender petioles more or less pubescent, often long-ciliate toward the base; racemes drooping, as long as the leaves or shorter, pubescent, several-flowered, the axis flexuous; pedicels 4–7 mm. long; bracts linear to linear-lanceolate, acute, persistent, longer than the pedicels or sometimes shorter; ovary glabrous; hypanthium yellowish-green to greenish-white, sparingly pubescent, 3–4 mm. long, urceolate-cylindric; sepals of the same color, pubescent, obtuse, a little longer than the hypanthium; petals oblong, colored like the sepals, and about two thirds as long, about as long as the stamens; fruit black, smooth, 6–10 mm. in diameter.

TYPE LOCALITY: Pennsylvania.
DISTRIBUTION: Nova Scotia to Virginia, Nebraska, Wyoming, Montana, Alberta, and Assiniboia; also in New Mexico.
ILLUSTRATIONS: Dill. Hort. Elth. *pl. 244, f. 315;* Guimp. Otto & Hayne, Abb. Holz. *pl. 1;* Moench, *loc. cit. pl. 6;* Mém. Soc. Genève 3^2: *pl. 2, f. 22;* Loud. Arb. *f. 735;* Britt. & Brown, Ill. Fl. *f. 1874;* Card, Bush Fruits *f. 107;* Mém. Soc. Genève 35^3: *f. 81.*

36. **Ribes Nelsoni** Coville & Rose, in Rose, Contr. U. S. Nat. Herb. 8: 297. 1905.

Ribes floridum puberulum Jancz. Mém. Soc. Genève 35 : 352. 1907.

Similar to *R. americanum*, unarmed, 1–2 m. high. Foliage abundantly dotted with large sessile golden-yellow glands; leaf-blades reniform-orbicular, 6 cm. wide or less, 3–5-lobed, the lobes acute, serrate-dentate; petioles pubescent and glandular; racemes drooping, 6–10-flowered, the linear-oblanceolate bracts longer than the pedicels, abundantly glandular-dotted on the lower side; ovary glabrous, or with a few scattered hairs when young; hypanthium cylindric-urceolate, canary-yellow, pubescent, about 4 mm. long; sepals obtuse, 5–6 mm. long, canary-yellow, pubescent; petals oblong, obtuse, yellow, somewhat shorter than the sepals and longer than the stamens.

TYPE LOCALITY: Colonia Garcia, Chihuahua, Mexico.
DISTRIBUTION: Type locality and vicinity.

37. **Ribes Brandegei** Eastw. Proc. Calif. Acad. III. Bot. **2**: 242. 1902.

Stems erect, the older dark-brown, the young twigs with short gland-tipped bristles. Leaves reniform-orbicular, thin, 3-lobed, irregularly and rather finely dentate, cordate at the base, 3–5 cm. broad, sparsely glandular-pubescent on both sides and on the slender petioles; peduncles nearly as long as the leaves, pubescent and with gland-tipped hairs, erect or spreading, bearing toward the end 3–10 short-pedicelled flowers; bracts obovate to oblanceolate, membranous, pubescent and glandular-ciliate, 5–8 mm. long, longer than the pedicels; ovary glabrous; hypanthium rose-purple, short-cylindric, about 4 mm. long and 3 mm. in diameter, puberulent; sepals oblong-obovate, rose-purple, puberulent, about as long as the hypanthium; petals spatulate-orbicular, about 2 mm. long, white, short-clawed; stamens about 1.5 mm. long, the anthers oblong, bluntly mucronate; berry globular, glabrous.

TYPE LOCALITY: Sierra de Laguna, Lower California.
DISTRIBUTION: Type locality and vicinity.
ILLUSTRATION: Eastw. *loc. cit. pl. 23, f. 1.*

38. **Ribes Wolfii** Rothr. Am. Nat. 8: 358. 1874.

Ribes mogollonicum Greene, Bull. Torrey Club 8: 121. 1881.

Unarmed, 3.5 m. high or less, the young shoots finely puberulent, or almost glabrous. Leaves thin, suborbicular in outline, 3–5-lobed, 4–9 cm. wide, cordate with an open sinus, glabrous above, usually somewhat puberulent on the veins and with sessile glands beneath, the lobes obtuse or acutish, serrate-dentate, the slender petioles puberulent and more or less glandular; racemes erect, few–several-flowered, the puberulent and glandular peduncles as long as the petioles or longer; pedicels 6–8 mm. long; bracts oblong or oblong-spatulate, about as long as the pedicels; ovary densely glandular-bristly; hypanthium puberulent, 1.5 mm. long; sepals greenish-white, ovate-oblong, veiny, 3–4 mm. long, spreading; petals white, spatulate, much shorter than the sepals; stamens about half as long as the sepals; berry black, sometimes with a bloom, glandular-bristly, 8–12 mm. in diameter.

TYPE LOCALITY: Twin Lakes and Mosquito Pass, Colorado.
DISTRIBUTION: Colorado, Utah, New Mexico, and Arizona.
ILLUSTRATIONS: Bot. Mag. *pl. 8120;* C. K. Schneid. Handb. Laubh. 1: *f. 265 r* (as *R. variegatum*); Mém. Soc. Genève 35[3]: *f. 52.*

39. **Ribes nevadense** Kellogg, Proc. Calif. Acad. 1: 63. 1855.

Ribes sanguineum variegatum S. Wats. Bot. King's Expl. 100. 1871.
Ribes variegatum A. Nelson, Key Rocky Mt. Reg. 34. 1902.
Ribes ascendens Eastw. Proc. Calif. Acad. III. Bot. 2: 244. 1902.
Ribes ascendens Jasperae Eastw. Proc. Calif. Acad. III. Bot. 2: 244. 1902.
Ribes Hittellianum Eastw. Proc. Calif. Acad. III. Bot. 2: 245. 1902.
Ribes glaucescens Eastw. Proc. Calif. Acad. III. Bot. 2: 245. 1902.
Ribes nevadense genuinum Jancz. Mém. Soc. Genève 35: 317. 1907.
Ribes nevadense Jasperae Jancz. Mém. Soc. Genève 35: 317. 1907.
Ribes Grantii Heller, Muhlenbergia 4: 27. 1908.

Unarmed, the young shoots somewhat puberulent or glabrous. Leaves thin, green on both sides, but paler beneath than above, sparingly pubescent or glabrous, 3–5-lobed, orbicular in outline or somewhat broader than long, the lobes obtuse, irregularly crenate-dentate, cordate to subtruncate at the base, 4–7 cm. wide, the slender petioles about as long as the blades, more or less pubescent and glandular, long-ciliate toward the base; racemes spreading, nodding or ascending, longer than the leaves or shorter, usually densely 12–20-flowered; pedicels 3–5 mm. long; bracts thin, pink or greenish, oblong to oblong-lanceolate, obtuse or acutish, longer than the pedicels, glandular-ciliolate; ovary beset with stalked or nearly sessile glands, otherwise glabrous; hypanthium rose-colored, 1.5–2 mm. long; sepals ovate, oblong, or obovate, obtuse or acute, about twice as long as the hypanthium, rose-colored; petals white, orbicular to oblong, shorter than the sepals; stamens equaling or shorter than the petals; style glabrous; berry blue, glaucous, subglobose, sparingly glandular, about 8 mm. in diameter.

TYPE LOCALITY: Not given.
DISTRIBUTION: Mountains of California, southern Oregon, and western Nevada.
ILLUSTRATIONS: Eastw. *loc. cit. pl. 23, f. 4–5; pl. 24, f. 6–7;* C. K. Schneid. Handb. Laubh. 1: *f. 265 a;* Jancz. *loc. cit. f. 53, 54.*

40. **Ribes sanguineum** Pursh, Fl. Am. Sept. 164. 1814.

Calobotrya sanguinea Spach, Ann. Sci. Nat. II. 4: 21. 1835.
Coreosma sanguinea Spach, Hist. Vég. 6: 155. 1838.
Ribes Scuphami Eastw. Proc. Calif. Acad. III. Bot. 2: 242. 1902.

An unarmed shrub, 1–4 m. high, the young shoots puberulent and often with some stalked glands. Leaves reniform-orbicular in outline, rather firm in texture, 3–5-lobed, cordate with a widely open sinus at the base or subtruncate, dark-green and puberulent above, whitish-tomentose beneath, the lobes obtuse, irregularly dentate or denticulate, the terminal one usually about as long as broad, the petioles mostly shorter than the blades, puberulent and commonly glandular; racemes erect or ascending in the wild plant, as long as the leaves or longer, mostly 10–15-flowered, pubescent and glandular; pedicels 5–10 mm. long; bracts oblanceolate, glandular, longer than the pedicels; ovary with stalked glands and usually some curled whitish simple hairs among them; hypanthium red, cylindric-campanulate, 3–5 mm. long, pubescent, sepals oblong, somewhat longer than the hypanthium, red, pubescent; petals white or reddish, spatulate, about half as long as the sepals; stamens equaling the petals; style glabrous; berry blue-black with a bloom, somewhat glandular.

TYPE LOCALITY: On the Columbia River.
DISTRIBUTION: British Columbia to northern California.
ILLUSTRATIONS: Trans. Hort. Soc. London 7: *pl. 13;* Bot. Cab. *pl. 1487;* Bot. Reg. *pl. 1349;* Bot. Mag. *pl. 3335;* Sweet, Brit. Fl. Gard. II. *pl. 109;* Maund, Bot. Gard. *pl. 377;* Paxton's Mag. Bot. 1: *pl.* opp. 3; Loud. Arb. *f. 739;* Spach, Hist. Vég. 6: *pl. 47, f. 1;* Eastw. *loc. cit. pl. 23, f. 2;* Mém. Soc. Genève 35³: *f. 57.*

41. **Ribes glutinosum** Benth. Trans. Hort. Soc. London II. 1: 476. 1835.

Ribes sanguineum glutinosum Loud. Arb. 988. 1836.
Ribes albidum Paxton, Paxton's Mag. Bot. 10: *pl. 55.* 1843.
Ribes glutinosum melanocarpum Greene, Man. Bay Reg. 124. 1894.
Ribes Santae-Luciae Jancz. Bull. Acad. Cracovie 1906: 9. 1906.
Ribes deductum Greene; Jancz. Mém. Soc. Genève 35: 320; hyponym. 1907.

Unarmed, similar to *R. sanguineum*, but the leaves commonly without tomentum on either side, often somewhat tomentose beneath; young shoots, petioles and racemes more or less pubescent and glandular. Leaves reniform-orbicular in outline, cordate or subtruncate at the base, 3–5-lobed, 8 cm. wide or less, more or less puberulent and glandular on both sides, or the upper surface glabrous when mature, the lobes obtuse, irregularly crenate-dentate, the terminal one often broader than long; racemes spreading or nodding, usually 15–40-flowered; pedicels 1 cm. long or less, often longer than the bracts; ovary usually glabrous, except for the stalked glands; hypanthium red, rarely white, pubescent and sometimes bearing stalked glands, nearly cylindric, 3–5 mm. long, somewhat shorter than the red sepals; style glabrous; berry oblong, 1 cm. long or less, blue with a bloom, or black.

TYPE LOCALITY: California (by inference).
DISTRIBUTION: Coast of middle California.
ILLUSTRATIONS: Maund, Bot. Gard. *pl. 597;* Paxton, *loc. cit.;* Loud. Arb. *f. 740;* C. K. Schneid. Handb. Laubh. 1: *f. 265 o;* Jancz. *loc. cit. f. 55, 56, 58.*

42. **Ribes malvaceum** Smith, in Rees, Cycl. 30: no. 13. 1815.

Ribes tubulosum Eschsch. Mém. Acad. St. Petersb. 10: 283. 1826.
Ribes tubiflorum Meyer, Mém. Acad. Mosc. 7: 140. 1829.
Ribes malvaceum Benth. Trans. Hort. Soc. London II. 1: 476. 1835.
Ribes sanguineum malvaceum Loud. Arb. 988. 1836.
Ribes malvaceum viridifolium Abrams, Bull. So. Calif. Acad. Sci. 1: 67. 1902.
Ribes viridifolium Heller, Muhlenbergia 1: 77. 1904.
Ribes purpurascens Heller, Muhlenbergia 4: 29. 1908.

Young branches, petioles, under leaf-surfaces, and inflorescence tomentose and glandular-pubescent. Leaves suborbicular to ovate-orbicular in outline, thin to rather firm in

texture, mostly 3-lobed, sometimes 5-lobed, cordate or subcordate at the base, the upper surface dark-green, stipitate-glandular, and sparingly pubescent, the under surface whitish-tomentose, the lobes crenulate, obtuse, the stout petioles shorter than the blades, glandular-ciliate toward the base; racemes drooping, several-flowered, longer than the leaves; pedicels 2–5 mm. long; bracts ovate to lanceolate, glandular-serrulate, acute, longer than the pedicels; ovary densely white-pubescent and with glandular hairs; hypanthium pink or purple, cylindric-urceolate, 5–7 mm. long, pubescent, distinctly longer than the obtuse sepals; petals rounded, short-clawed, about half as long as the petals; berry viscid-pubescent, 1 cm. in diameter or less.

TYPE LOCALITY: California.
DISTRIBUTION: Coast of middle and southern California, and northern Lower California.
ILLUSTRATIONS: Sweet, Brit. Fl. Gard. II. *pl. 340*; Meyer, *loc. cit. pl. 4*; Loud. Arb. *f. 741*; C. K. Schneid. Handb. Laubh. 1: *f. 265 m, n*; Mém. Soc. Genève 35³: *f. 59 a-c.*

43. **Ribes indecorum** Eastw. Proc. Calif. Acad. III. Bot. 2: 243. 1902.

Ribes malvaceum indecorum Jancz. Mém. Soc. Genève 35: 325. 1907.

Stems erect, unarmed, the young shoots pubescent and with glandular hairs; petioles, under leaf-surfaces, and inflorescence tomentose and glandular-pubescent. Leaves reniform-orbicular to ovate-orbicular in outline, firm in texture, cordate or subcordate at the base, 3–5-lobed, 2–5 cm. wide, the upper surface rugose, stipitate-glandular, and with some simple hairs, the lobes obtuse, crenulate, the petioles rather stout, mostly shorter than the blades, with a few long glandular hairs toward the base; racemes drooping or spreading, closely several-flowered, as long as the leaves or longer; pedicels 1–2 mm. long; bracts ovate-lanceolate, acute, 3–5 mm. long; ovary covered with both glandular and white divergent simple hairs; hypanthium white or greenish-white, cylindric-urceolate, glandular-pubescent, 3–4 mm. long, nearly twice as long as the obtuse sepals; style villous toward the base; petals suborbicular, short-clawed, about 1 mm. long; berry viscid, at least 7 mm. in diameter.

TYPE LOCALITY: Cajon Heights, near San Diego, California.
DISTRIBUTION: Southern California.
ILLUSTRATIONS: Eastw. *loc. cit. pl. 23, f. 3*; Jancz. *loc. cit. f. 59 d, e.*

2. **GROSSULARIA** (Tourn.) Mill. Gard. Dict. ed. 7. 1759.

Robsonia Spach, Hist. Vég. 6: 180. 1838.

Shrubs with erect ascending or trailing branches, the nodes armed with simple or 3-forked spines or rarely spineless. Racemes few-flowered, the flowers bracteate; pedicels not jointed, the bractlets if present minute, situated at the very base of the pedicel, and covered by the bract. Ovary often spiny. Hypanthium evident. Fruit not disarticulating from the pedicel.

Type species, *Ribes Grossularia* L.

A. Flowers tetramerous; petals equaling the sepals; stamens exceeding the outstretched sepals by more than the combined length of ovary, hypanthium, and sepals. (SPECIOSAE.) — 1. *G. speciosa.*

B. Flowers pentamerous; petals decidedly shorter than the sepals; stamens not as described above.

a. Anthers lanceolate to lanceolate-ovate, 2 mm. long or more. (MENZIESII.)

* Hypanthium about as long as broad, less than half and usually about a third or a fourth the length of the sepals; young branches usually with bristles in addition to the nodal spines.

Sepals greenish-white; ovary clothed with gland-tipped hairs, without an admixture of longer glandless bristles.

Filaments equaling or exceeding the outstretched sepals, twice as long as the petals. — 2. *G. Greeneiana.*

Filaments distinctly shorter than the extended sepals, often only a little longer than the petals. — 3. *G. Victoris.*

Sepals purple to green; ovary often, and in species with green flowers always, with longer glandless bristles among the gland-tipped hairs.

Ovary whitened with a dense covering of long straight white glandless hairs interspersed with a few glandular or glandless bristles; leaves softly villous-pubescent beneath, even at maturity, with a few coarse glanduliferous hairs. — 7. *G. senilis.*

Ovary with the pubescence, if any, in the form of sparse, inconspicuous curled white hairs interspersed among the bristles; leaves conspicuously glandular beneath, usually with little or no pubescence.
Leaves decidedly glandular beneath; bristles of the ovary chiefly or wholly gland-tipped; bark of new growth usually bristly; sepals purple, and including the hypanthium 11–15 mm. long.
Leaves thick, usually rugose, the lower surface covered with velvety pubescence interspersed with long-stalked glands. 4. *G. Menziesii.*
Leaves thin, not rugose, the lower surface sparingly or not at all pubescent when fully expanded, the glands, except those on the veins, mostly sessile or nearly so.
New growth densely bristly; petals 4–5 mm. long, barely or not at all exceeded by the filaments. 5. *G. Hystrix.*
New growth usually only sparingly bristly; petals 2.5–3.5 or sometimes 4 mm. in length, the filaments nearly twice as long. 6. *G. leptosma.*
Leaves almost wholly devoid of glands beneath; bristles of the ovary chiefly or wholly glandless; bark of new growth without bristles; sepals commonly green, and including the hypanthium 9–11 mm. long.
Leaves glabrous or nearly so; petals one half the length of the filaments or less; sepals commonly with a tuft of hairs at the apex, otherwise usually glabrous throughout. 8. *G. californica.*
Leaves minutely and sparingly pubescent on both surfaces; petals about three fourths as long as the filaments; outer surface of the sepals sparingly villous. 9. *G. hesperia.*
**Hypanthium much longer than broad, at least half the length of the sepals; stems with nodal spines, but without bristles.
Leaves rarely glandular beneath; hypanthium and sepals very rarely with glandular hairs; bristles of the ovary mostly non-glandular.
Herbage, hypanthium, and sepals glabrous. 10. *G. cruenta.*
Hypanthium and sepals pubescent, the leaves usually so. 11. *G. Roezli.*
Leaves glandular beneath; hypanthium and sepals with some gland-tipped hairs; bristles of the ovary wholly or chiefly gland-tipped. 12. *G. amara.*

b. Anthers not evidently broader at the base than at the apex, usually less than 2 mm. long.
* Styles smooth throughout.
† Flowers deep-red or purple; filaments twice the length of the petals or more. (LOBBII.)
New growth conspicuously clothed with coarse bristly hairs in addition to the nodal spines; anthers 2 mm. or more in length. 13. *G. sericea.*
New growth very rarely with a few bristles in addition to the nodal spines.
Leaves densely glandular and viscid beneath; hairs of the ovary all gland-tipped; anthers nearly as broad as long, granuliferous on the back. 14. *G. Lobbii.*
Leaves glabrous or nearly so on the back; ovary with larger non-glandular bristles as well as gland-tipped hairs; anthers more than twice as long as broad, not granuliferous on the back. 15. *G. Marshallii.*
†† Flowers usually of some other color; filaments (except in *G. binominata*, a species with green calyx and very spiny fruit) equaling or shorter than the petals.
§ Ovary densely bristly, the bristles developing into sharp spines in fruit.
° Hypanthium and sepals orange or purplish, the former usually one half or more the length of the latter, together 10 to 16 mm. long; berry dark-purple at maturity. (PINETORUM.) 16. *G. pinetorum.*
°° Hypanthium and sepals green, the former less than one half the length of the latter, together 6 to 10 mm. long; berry greenish-yellow at maturity. (WATSONIANAE.)
Leaf-blades without gland-tipped hairs; stamens exceeding the petals by usually more than the length of their anthers. 17. *G. binominata.*
Leaf-blades with stout gland-tipped hairs on both surfaces; stamens, including their anthers, equaling the petals.
Plant erect; shoots merely puberulent; anthers about 1 mm. long. 18. *G. Watsoniana.*

Plant trailing; shoots clothed with weak gland-tipped bristles; anthers about 2 mm. long. 19. *G. tularensis.*

§§ Ovary smooth or with weak glandless or gland-tipped hairs, these not developing into spines on the fruit.

° Sepals twice the length of the hypanthium or more; petals red throughout. (MADRENSES.) 20. *G. madrensis.*

°° Sepals less than twice the length of the hypanthium; petals yellow or greenish, sometimes with purple margins. (MICROPHYLLAE.)

Length of the dried flower, from the base of the ovary to the apex of the extended sepals, 8 mm. or more; hypanthium longer than broad, usually twice as long.

Hypanthium 2.5–3.5 mm. broad in anthesis, and including the sepals 10–12 mm. in length; flowers red. 21. *G. microphylla.*

Hypanthium narrower, or the corresponding measurements shorter, or both.

Flowers white; species of the Rocky Mountain region. 22. *G. leptantha.*

Flowers yellow; species Californian.

Hypanthium about 4 mm. long, its diameter about one third as much, longer than the sepals, sometimes nearly twice as long. 23. *G. lasiantha.*

Hypanthium about 2.5 mm. in length, when not shriveled almost as broad as long, equaling or shorter than the sepals. 24. *G. quercetorum.*

Length of the dried flower 7 mm. or less; hypanthium in the fresh flower as broad as or broader than long. 25. *G. velutina.*

** Styles hairy toward the base.

† Ovary bristly, the bristles, at least the larger ones, not gland-tipped. (CYNOSBATI.) 26. *G. Cynosbati.*

†† Ovary smooth, or occasionally pubescent, or with stalked glands.

‡ Sepals white; filaments more than twice the length of the petals. (NIVEAE.)

Filaments and anthers devoid of hairs; one-year-old shoots white to buff-colored. 27. *G. missouriensis.*

Filaments, and usually the anthers also, hairy; one-year-old shoots reddish-brown.

Hypanthium barely as broad as long; ovary with neither glands nor hairs; petals with the apical margin conspicuously revolute; anthers about as broad as long, little or not at all recurved. 28. *G. nivea.*

Hypanthium about twice as broad as long; ovary with sessile glands, these sometimes obscured by villous hairs; petals with the apical margin not revolute; anthers twice as long as broad, when dry strongly recurved from about the middle. 29. *G. curvata.*

‡‡ Sepals green or purplish, or, if not, the filaments less than twice the length of the petals.

§ Stamens equaling the petals; leaf-blades usually bearing beneath and sometimes also above, sparingly or abundantly, minute sessile or stalked glands visible under a strong lens, the glands usually interspersed in the pubescence and often disappearing on old leaves. (SETOSAE.)

Hypanthium narrowly tubular, 2–4 times as long as broad, usually longer than the white or pinkish sepals.

Hypanthium sparsely hirsute; bark of one-year-old shoots white to buff-colored. 30. *G. cognata.*

Hypanthium glabrous; bark of one-year-old shoots usually red-brown. 31. *G. setosa.*

Hypanthium, during anthesis and before shriveling, campanulate, nearly or quite as broad as long, shorter than the green, greenish-white, or purplish sepals.

Bark of new wood little or not at all bristly; flowers well exserted from the bud-scales; hypanthium and sepals together commonly 8–10 mm. long. 32. *G. irrigua.*

Bark of new wood bristly, often very bristly; flowers usually appearing almost sessile, the peduncle and pedicels together barely or not at all exceeding the bud-scales; hypanthium and sepals together commonly 5–7 mm. long. 33. *G. oxyacanthoides.*

§§ Stamens about twice the length of the petals or even longer; pubescence of the leaf-blades when present rarely with glands.

Ovary villous. (RECLINATAE.) 34. *G. reclinata.*

Ovary glabrous, except for the presence, rarely, of gland-tipped hairs. (DIVARICATAE.)
Sepals purple or sometimes green, 2–4 times the length of the hypanthium; stamens plainly exceeding the extended sepals.
Leaves usually rounded at the base, and 3-lobed, and as long or longer than broad, minutely pubescent above, the hairs very short and curled, and most abundant along and near the veins; nodal spines inconspicuous, seldom more than 5 mm. long; hypanthium and sepals together about 5–6 mm. long in the dried flower. 35. *G. rotundifolia.*
Leaves usually truncate or somewhat cordate at the base, and 5-lobed, and broader than long, the upper surface provided with rather long and straight, usually sparse, hairs; nodal spines abundant, very large and stout, commonly 1 cm. or more in length; hypanthium and sepals together 6–8 mm. long in the dried flower. 36. *G. divaricata.*
Sepals green or sometimes purplish, 1–2 times the length of the hypanthium; stamens equaling or shorter than the extended sepals (in *G. hirtella*, a species of the eastern United States, sometimes exceeding the sepals).
Leaf-blades truncate to somewhat cordate at the base; species of the Rocky Mountains and westward.
Hypanthium and sepals together 8–10 mm. long, purplish; petals red; anthers 1 mm. long. 37. *G. Parishii.*
Hypanthium and sepals together 5–7 mm. long, green, the sepals rarely purplish; petals white; anthers about 0.5 mm. long.
Leaf-blades smooth on both surfaces, or in Rocky Mountain specimens sometimes villous, but in the latter case provided with the peculiar glands of the *Setosae;* hypanthium and sepals smooth; mature berry dark wine-colored when fresh. 38. *G. inermis.*
Leaf-blades villous on both surfaces, not glandular; hypanthium and sepals usually hirsute on the outside; berry black. 39. *G. klamathensis.*
Leaf-blades wedge-shaped at the base, except on an occasional aberrant plant; species east of the Rocky Mountains. 40. *G. hirtella.*

1. **Grossularia speciosa** (Pursh) Coville & Britton.

Ribes speciosum Pursh, Fl. Am. Sept. 731. 1814.
Ribes stamineum Smith, in Rees, Cycl. **30**: no. 30. 1815.
Ribes fuchsioides Moc. & Sesse; Berland. Mém. Soc. Genève 3^2: 58. 1826.
Ribes triacanthum Menzies; Hook. Fl. Bor. Am. 1: 229, as synonym. 1832.
Robsonia speciosa Spach, Hist. Vég. 6: 181. 1838.

Stems stout, often 3 or 4 m. tall, the branches more or less densely bristly; nodal spines 3, rather stout, rigid, very pungent, 1–2 cm. long. Leaves orbicular, oblong, or obovate, coriaceous, glabrous, or sparingly glandular-hairy, long-persistent, 1–4 cm. long, slightly 3–5-lobed or few-toothed, the petioles mostly shorter than the blades; peduncles drooping, 1–few-flowered; pedicels slender, glandular-bristly, longer than the ovate-orbicular bracts; hypanthium 2–3 mm. long, glandular-bristly; sepals 4, parallel, bright-red, 6–10 mm. long, about equaled by the petals; filaments much exserted, 2–4 times as long as the sepals; anthers oval, about 1 mm. long; berry glandular-bristly.

TYPE LOCALITY: California, incorrectly given by Pursh as the Northwest Coast.
DISTRIBUTION: Along the coast of southern California, San Diego County to Monterey County.
ILLUSTRATIONS: Bot. Reg. *pl. 1557;* Sweet, Brit. Fl. Gard. II. *pl. 149;* Maund, Botanist *pl. 38;* Bot. Mag. *3530;* Loud. Arb. *f. 722;* Mém. Soc. Genève 3^2: *pl. 3;* Card, Bush Fruits *f. 80;* Mém. Soc. Genève 35^3: *f. 87.*

2. **Grossularia Greeneiana** (Heller) Coville & Britton.

Ribes Greeneianum Heller, Muhlenbergia 1: 111. 1905.

A shrub 3.5 m. high or less, the bark brownish-gray, glabrous; young twigs densely bristly, the bristles deciduous; nodal spines acicular, 1.5 cm. long or less. Leaves orbicular or ovate-orbicular in outline, cordate, glandular-hairy on both surfaces, and softly pubes-

cent beneath, 2–4 cm. broad, 3–5-lobed, the lobes coarsely crenate, the pubescent and glandular petiole usually somewhat shorter than the blade; flowers solitary or 2 together, nodding; peduncle glandular and pubescent, 2–3 cm. long; pedicels much shorter than the peduncle, only 3 or 4 mm. long; bract suborbicular, thin, ciliate, shorter than the pedicels; hypanthium nearly white, about 3 mm. long and thick, glandular-pubescent; sepals greenish-white, oblong-lanceolate, acutish, about 7 or 8 mm. long, glandular-pubescent; petals white, truncate, about 4 mm. long, involute; filaments as long as the sepals or a little longer, flattened at the base; anthers lanceolate, about 2.5 mm. long; ovary densely glandular-hairy; style slightly exceeding the stamens, 2-cleft; berry oval, about 1.5 cm. long, very densely covered with weak gland-tipped bristles.

TYPE LOCALITY: Vacaville, Solano County, California.
DISTRIBUTION: Type locality and vicinity.

3. **Grossularia Victoris** (Greene) Coville & Britton.

Ribes Victoris Greene, Pittonia 1: 224. 1888.
Ribes Menziesii Victoris Jancz. Mém. Soc. Genève **35**: 363. 1907.
Ribes Menziesii minus Jancz. Mém. Soc. Genève **35**: 363. 1907.

A shrub about 2 m. high, the young twigs varying from densely bristly to nearly or quite smooth, puberulent and somewhat viscid; nodal spines acicular, widely diverging, 1–2 cm. long. Leaves suborbicular in outline, 5 cm. wide or less, thin, 3-lobed or 5-lobed, cordate at the base, loosely glandular-hairy, and often very sparingly villous also, on both surfaces, the lobes coarsely crenate, the petiole as long as the blade or shorter; flowers solitary or 2 together, nodding; peduncles slender, pubescent and glandular, 1.5–2 cm. long; pedicels only about 3 mm. long, about as long as the orbicular-erose or entire glandular bracts; hypanthium greenish-white, densely glandular, about 3 mm. long and nearly as thick as long; sepals white, linear-oblong, 6–11 mm. long, recurved; petals acutish and erose; filaments shorter than the sepals, often scarcely exceeding the petals; anthers oblong-ovate, 2–3 mm. long; ovary glandular-pubescent; berry oval, dark-colored, about 2 cm. long, 1.5 cm. in diameter, densely glandular-bristly.

TYPE LOCALITY: Near the base of Mt. Tamalpais, Marin County, California.
DISTRIBUTION: Middle California.
ILLUSTRATION: Card, Bush Fruits *f. 84*.

4. **Grossularia Menziesii** (Pursh) Coville & Britton.

Ribes Menziesii Pursh, Fl. Am. Sept. 732. 1814.
Ribes Menziesianum R. & S. Syst. Veg. 5: 507. 1819.
Ribes ferox Smith, in Rees, Cycl. **30**: no. 26. 1815.
Ribes subvestitum H. & A. Bot. Beech. Voy. 346. 1838.

A shrub 2 m. high or less, the young twigs pubescent and densely bristly, the spreading acicular nodal spines 1–2 cm. long. Leaves ovate-orbicular to reniform-orbicular in outline, 4 cm. wide or less, firm in texture, rugose at maturity, 3–5-lobed with crenate-dentate lobes, cordate to subtruncate at the base, glabrous or with scattered glandular hairs above, velvety-pubescent and with stalked glands beneath, the slender pubescent and glandular petiole about as long as the blade; peduncles slender, shorter or longer than the petioles, 1- or 2-flowered; bracts thin, shorter than the glandular pedicels; hypanthium subcampanulate, 2–3 mm. long and about as thick as long, purple, glandular-pubescent; sepals oblong, purple, bluntish, 7–11 mm. long; ovary glandular-bristly, the larger bristles often without glands; stamens about equaling the sepals, anthers ovate-lanceolate, mucronate, sagittate; petals whitish, erose, shorter than the filaments; berry globose, bristly, about 1 cm. in diameter.

TYPE LOCALITY: On the northwest coast, near Fort Trinidad.
DISTRIBUTION: Along the coast, southern Oregon to middle California.
ILLUSTRATIONS: Bot. Reg. **33**: *pl. 56?*

5. **Grossularia Hystrix** (Eastw.) Coville & Britton.

Ribes Hystrix Eastw. Proc. Calif. Acad. III. Bot. **2**: 248. 1902.

Stems a meter high or more, with tortuous densely bristly young branches, the bristles yellow; nodal spines stout, subulate, 1–2.5 cm. long, pubescent toward the base.

Leaves thin, 2–5 cm. wide, orbicular to ovate-orbicular, 3–5-lobed, incised-dentate, not rugose, glabrous or sparingly pubescent above when young, finely loosely pubescent or nearly glabrous but with mainly sessile or very short-stalked glands beneath; petioles about as long as the blade, whitish-pubescent and with stalked glands; peduncles 1–3-flowered, pubescent and with stalked glands, as long as the petioles or longer; bracts orbicular to ovate, sometimes lobed, shorter than the pedicels; ovary pubescent and with both glandular and non-glandular bristles; hypanthium purple, pubescent and glandular, subcampanulate, about 4 mm. long, nearly half as long as the sepals; sepals greenish-purple, lanceolate, glandular-hairy and sparingly villous below, conspicuously villous at the apex; petals white, obovate, acute, clawed, about 5 mm. long, about as long as the flat filaments; anthers sagittate, mucronate, 3 mm. long; styles surpassing the sepals; berry purple, densely prickly.

TYPE LOCALITY: Gorda, Santa Lucia Mountains, California.
DISTRIBUTION: Santa Lucia Mountains.
ILLUSTRATION: Eastw. *loc. cit. pl. 24, f. 10.*

6. **Grossularia leptosma** Coville, sp. nov.

A shrub 1–1.6 m. high, the young twigs sparingly bristly, sometimes densely so, often without bristles; nodal spines subulate-acicular, 2 cm. long or less. Leaves suborbicular in outline, cordate or truncate at the base, thin, not rugose, 5 cm. wide or less, 3–5-lobed, crenate-dentate, scantily pubescent on both sides, or glabrous above, the lower surface with usually nearly sessile glands and sometimes some stalked ones on the principal veins; petiole glandular-hairy and pubescent, about as long as the blade; flowers 1 to 3 together, the glandular and pubescent peduncle as long as the petioles or shorter; bracts ovate, usually shorter than the pedicels; ovary densely glandular-bristly; hypanthium pubescent and with stalked glands, greenish-purple, 2.5–3.5 mm. long; sepals purple or greenish-purple, lanceolate, about three times as long as the hypanthium; petals broad, white, erose-truncate, about three-fifths as long as the filaments; stamens equaling the sepals, the anthers lanceolate, mucronate, about 2 mm. long; berry oval or globose, densely glandular-bristly, about 1.5 cm. in diameter.

Type collected in Bear Valley, Marin County, California, March 31, 1894, *J. Burtt Davy 696*, and identified by Professor Edward L. Greene as *Ribes subvestitum* H. & A. That plant, however, is the same as *R. Menziesii* Pursh.
DISTRIBUTION: Middle California.
ILLUSTRATIONS: Jancz. *loc. cit. f. 91, 92.*

7. **Grossularia senilis** Coville, sp. nov.

A shrub with loosely or densely bristly twigs; nodal spines triple, acicular, 1–2 cm. long. Leaves ovate-orbicular in outline, 3–5-lobed, cordate at the base, incisely crenate-dentate, 4 cm. wide or less, thin, somewhat paler beneath than above, sparingly villous and glandular-hairy above, or nearly smooth, beneath softly villous-pubescent and with scattered stalked glands, the villous and somewhat glandular-pubescent petioles as long as the blades or shorter; flowers solitary or 2 together on villous and glandular-hairy peduncles 1.5–3 cm. long; bracts ovate, dentate, mostly shorter than the pedicels; ovary densely villous, with a few gland-tipped or glandless bristles; hypanthium purple, pubescent, cylindric-campanulate, 4–5 mm. long, nearly half as long as the purple, lanceolate, villous, and glandular-hairy sepals; petals white or whitish, involute, erose, about as long as the filaments, half the length of the sepals or more; anthers ovate-lanceolate, sagittate, mucronate, nearly 3 mm. long; berry unknown.

Type collected near Saratoga, Santa Clara County, California, *A. A. Heller*, and distributed as *Ribes subvestitum* H. & A.
DISTRIBUTION: Santa Clara and Santa Cruz counties, California.

8. **Grossularia californica** (H. & A.) Coville & Britton.

Ribes californicum H. & A. Bot. Beech. Voy. 346. 1838.
Ribes occidentale H. & A. Bot. Beech. Voy. 346. 1838.
Ribes oligacanthum Eastw. Proc. Calif. Acad. III. Bot. **2**: 246. 1902.
Ribes occidentale californicum Jancz. Mém. Soc. Genève **35**: 368. 1907.

A shrub 2 m. high or less, the slender young twigs without bristles; nodal spines subulate, rather stout, 1–1.5 cm. long, or sometimes much shorter. Leaves suborbicular in outline, usually 5-lobed, sometimes 3-lobed, incisely crenate-dentate, thin, truncate or subcordate at the base, small, 1.5–3 cm. wide, glabrous or nearly so on both sides, deep-green above, paler and nearly or quite smooth beneath, the slender, sparingly glandular-pubescent or glabrous petiole about as long as the blade, often ciliate at the base; peduncles 1–3-flowered, shorter than the leaves, somewhat pubescent and with a few stalked glands, or glabrous; bracts ovate to orbicular, shorter than the pedicels; ovary bristly, the shorter bristles sometimes glanduliferous; hypanthium short, broad, cylindric, 2 mm. long or less; sepals green or somewhat purplish, narrowly lanceolate, glabrous or occasionally puberulent, often with a tuft of hairs at the apex, about 6–8 mm. long; petals obovate, erose, about 2 mm. long; stamens equaling the sepals, the filaments more than twice as long as the petals; anthers lanceolate, mucronulate, about 2 mm. long; berry densely or sparingly prickly, commonly 8–12 mm. in diameter.

TYPE LOCALITY: California.
DISTRIBUTION: Middle California.
ILLUSTRATIONS: Eastw. *loc. cit. pl. 24, f. 8;* Card, Bush Fruits *f. 83;* Jancz. *loc. cit. f. 95.*

9. **Grossularia hesperia** (McClatchie) Coville & Britton.

Ribes hesperium McClatchie, Erythea 2: 79. 1894.
Ribes occidentale hesperium Jancz. Mém. Soc. Genève 35: 368. 1907.

A shrub 1.5–3 m. high, the spreading branches smooth, without bristles; nodal spines stoutly subulate, straight or curved, 1.6 cm. long or less. Leaves thin, suborbicular in outline, 4.5 cm. wide or less, 3–5-lobed, crenate-dentate, mostly truncate at the base, loosely puberulent on both sides, paler beneath than above, with minute sessile glands beneath or nearly glandless, the slender puberulent petiole as long as the blade or shorter; peduncles puberulent, 1–2-flowered, mostly shorter than the petioles, 5–15 mm. long; bracts flabellate, pubescent, ciliate, shorter than the pedicels; ovary densely bristly, a few of the shorter bristles sometimes gland-tipped; hypanthium campanulate, greenish, 2–3 mm. long, puberulent; sepals greenish or greenish-red, 7–9 mm. long, puberulent, narrowly lanceolate; petals white, tinged with red, cuneate-oblong, 2- or 3-toothed, about half as long as the sepals, equaling the filaments or nearly so; anthers oblong-lanceolate, mucronate, about 2.5 mm. long; berry densely prickly, 1.5 cm. in diameter or less.

TYPE LOCALITY: Cañons of the San Gabriel Mountains, California.
DISTRIBUTION: Southern California.
ILLUSTRATION: Jancz. *loc. cit. f. 96.*

10. **Grossularia cruenta** (Greene) Coville & Britton.

Ribes cruentum Greene, Pittonia 4: 35. 1899.
Ribes amictum cruentum Jancz. Mém. Soc. Genève 35: 366. 1907.

Stems glabrous throughout, or the younger twigs, young petioles, and hypanthium puberulent; nodal spines acicular, 1–1.5 cm. long. Leaves reniform to orbicular, small, 1–2.5 cm. wide, mostly 3-lobed, crenate-dentate, the slender petioles mostly shorter than the blades; flowers solitary or two together, on peduncles usually shorter than the leaves; bracts clasping, veiny, erose, sometimes ciliate, longer than the pedicels; ovary bristly and sometimes with a few stalked glands; hypanthium cylindric-campanulate, crimson, 5–7 mm. long and about 3 mm. thick; sepals lanceolate, crimson; petals white or pink, involute, erose or laciniate, about half as long as the sepals, a little shorter than the filaments; anthers lanceolate to ovate, about 2.5 mm. long; berry densely spiny.

TYPE LOCALITY: California, Coast Range from Sonoma County northward.
DISTRIBUTION: Middle California to southern Oregon. Perhaps a glabrate race of the following species.
ILLUSTRATIONS: Bot. Mag. *pl. 8105;* Jancz. *loc. cit. f. 93, 94.*

11. **Grossularia Roezli** (Regel) Coville & Britton.

Ribes Roezli Regel, Gartenflora 28: 226. 1879.
Ribes amictum Greene, Pittonia 1: 69. 1887.
Ribes Wilsonianum Greene, Erythea 3: 70. 1895.

Ribes aridum Greene, Pittonia 4 : 35. 1899.
Ribes amictum pubescens Jancz. Mém. Soc. Genève 35 : 366. 1907.

A shrub 1.5 m. high or less, with slender pubescent but not bristly twigs ; nodal spines acicular, brownish, straight or a little curved, 1.5 cm. long or less. Leaves small, 1.5–2.5 cm. wide, reniform-orbicular in outline, rather thin, 3–5-lobed and incisely dentate-crenate finely pubescent on both sides, sometimes densely so, sometimes nearly or quite glabrous above, the slender pubescent or sometimes nearly glabrous petioles as long as the blades or shorter ; peduncles 1–3-flowered, shorter than the leaves, sometimes with a few stalked glands ; bracts thin, clasping, longer or sometimes shorter than the pedicels, pubescent or glabrate ; ovary usually white-hairy, bristly, the bristles mostly eglandular ; hypanthium nearly cylindric, 5–7 mm. long, purple or purplish, pubescent ; sepals purple, lanceolate, 7–10 mm. long ; petals involute, erose, about half the length of the sepals, about as long as the filaments ; anthers ovate to lanceolate, mucronate, about 2.5 mm. long ; berry bristly, purple, about 1–1.5 cm. in diameter.

TYPE LOCALITY : Western North America.
DISTRIBUTION : Middle and southern California.
ILLUSTRATIONS : Regel, *loc. cit. pl. 982, f. 1–3 ;* C. K. Schneid. Handb. Laubh. 1 : *f. 262 o–p.*

12. **Grossularia amara** (McClatchie) Coville & Britton.

Ribes amarum McClatchie, Erythea 2 : 79. 1894.
Ribes mariposanum Congdon, Erythea 7 : 183. 1900.
Ribes Menziesii amarum Jancz. Mém. Soc. Genève 35 : 363. 1907.

A shrub 2.5 m. high or less, the slender young twigs pubescent or puberulent and glandular, the older ones smooth and brown ; nodal spines brown, 1 cm. long or less, sometimes pubescent. Leaves suborbicular in outline, thin, 4 cm. wide or less, 3–5-lobed, incised, crenate-dentate, cordate or subtruncate at the base, more or less glandular-puberulent and pubescent on both surfaces, the pubescent and glandular petioles as long as the blades or shorter ; peduncles 1–3-flowered, shorter than the leaves, glandular-pubescent ; bracts broadly ovate, often 3-lobed, about 6 mm. long, shorter than or equaling the pedicels ; ovary very densely glandular-bristly, all or nearly all the bristles gland-tipped ; hypanthium narrowly campanulate, purplish, pubescent and with stalked glands, 5–6 mm. long ; sepals purple or red-purple, lanceolate, loosely pubescent, a third to a half longer than the hypanthium ; petals pinkish-white, broad, involute, about 4 mm. long, erose ; filaments a little longer than the petals ; anthers sagittate, mucronate, about 2.5 mm. long : berry subglobose, 1.3–2 cm. in diameter, densely covered with short gland-tipped bristles producing a bitter secretion, the pulp sweet.

TYPE LOCALITY : Cañons of the San Gabriel Mountains, California.
DISTRIBUTION : Central to southern California, in the mountains.

13. **Grossularia sericea** (Eastw.) Coville & Britton.

Ribes sericeum Eastw. Proc. Calif. Acad. III. Bot. 2 : 246. 1902.
Ribes sericeum viridescens Eastw. Proc. Calif. Acad. III. Bot. 2 : 247. 1902.

Stems and branches rather densely clothed with short weak gland-tipped bristles ; nodal spines 3, stout, the middle one 10–15 mm. long, the lateral ones somewhat shorter. Leaves thin, ovate-orbicular in outline, 3–5-lobed, 2–4 cm. long, the pubescence villous and also glandular, the lobes incised-crenate, the slender petioles glandular-pubescent, as long as the blades or shorter ; peduncles 1–3-flowered, glandular-pubescent, 1.5–3 cm. long ; bracts suborbicular, often 3-lobed ; pedicels about half as long as the peduncles, glandular-pubescent ; ovary densely glandular-bristly and somewhat villous ; hypanthium campanulate, greenish-red, pubescent, 3–4 mm. long ; sepals oblong, reflexed, red or greenish, 2 to 3 times as long as the hypanthium, villous-pubescent ; petals white, 5 mm. long, involute, truncate, slightly erose ; stamens about three times as long as the petals ; anthers narrowly oblong, obtuse, 2 mm. long ; berry globose, purple, about 1.5 cm. in diameter, densely bristly.

TYPE LOCALITY : Spruce Creek, Monterey County, California.
DISTRIBUTION : Monterey County, California.
ILLUSTRATION : Eastw. *loc. cit. pl. 24, f. 9.*

14. **Grossularia Lobbii** (A. Gray) Coville & Britton.

Ribes Lobbii A. Gray, Am. Nat. 10: 274. 1876.

A low shrub, 2 m. high or less, the young shoots pubescent, the branches armed at the nodes with triple spines 18 mm. long or less, otherwise unarmed, or rarely with some short scattered prickles. Leaves thin, suborbicular in outline, cordate or subcordate at the base, 2–3.5 cm. wide, 3–5-lobed, sparingly pubescent when young, and with glandular hairs, or the upper surface glabrate, the lobes obtuse, crenate-dentate, the slender petioles glandular-pubescent; peduncles 1-flowered or occasionally 2-flowered, glandular-pubescent, shorter than the leaves; bracts ovate to orbicular, as long as the pedicel or shorter; ovary densely covered with short-stalked glands; hypanthium narrowly campanulate, purple-red, finely pubescent, 3–5 mm. long; sepals oblong, purple-red, reflexed-spreading, 2 to 3 times as long as the hypanthium; petals whitish, about half as long as the stamens; stamens about as long as the sepals; anthers broadly oval, purple, granulose on the back, obtuse at each end, 1.5 mm. long; berry oblong, about 1.5 cm. long, densely glandular.

TYPE LOCALITY: Vancouver Island.
DISTRIBUTION: Southern British Columbia to northern California.
ILLUSTRATIONS: Bot. Mag. *pl. 4931* (as *R. subvestitum*); Card, Bush Fruits *f. 85*; Mém. Soc. Genève 35[3]: *f. 88, 89.*

15. **Grossularia Marshallii** (Greene) Coville & Britton.

Ribes Marshallii Greene, Pittonia 1: 31. 1887.

Young shoots puberulent; branches armed at the nodes with short triple spines 1 cm. long or less. Leaves very thin, deeply cordate at the base, glabrous except for a few simple and glandular hairs on the veins of the under side and on the slender petioles, 2.5–3.5 cm. wide, 3-lobed or 5-lobed, the lobes obtuse, irregularly crenate-dentate; petioles as long as the blades or shorter; peduncles 1-flowered, sparingly glandular-pubescent, shorter than the petioles; bracts ovate, shorter than the pubescent and sparingly bristly pedicel; ovary bristly, the bristles weak, ascending; hypanthium cylindric-campanulate, 2–3.5 mm. long, sparingly pubescent, green or purplish; sepals linear-oblong, 12–15 mm. long, often greenish on the outside, recurved-spreading; petals salmon-colored, spatulate, half as long as the stamens; stamens a little longer than the sepals, the anthers narrowly oblong, yellow, 1.5 mm. long, obtuse at each end.

TYPE LOCALITY: Summit of Trinity Mountains, California.
DISTRIBUTION: Coast ranges of northern California.
ILLUSTRATION: Mém. Soc. Genève 35[3]: *f. 90.*

16. **Grossularia pinetorum** (Greene) Coville & Britton.

Ribes pinetorum Greene, Bot. Gaz. 6: 157. 1881.

A shrub about 2 m. high, the branches glabrous and without prickles, but bearing stout nodal spines, these solitary or 2 or 3 together, chestnut-brown, straight or slightly curved, 12 mm. long or less. Leaves nearly orbicular in outline, thin, mostly 5-cleft, 2–3 cm. wide, glabrous and dull-green above, paler and sparingly puberulent beneath, at least on the stronger veins, sometimes slightly villous and glandular, the lobes obtuse, irregularly incised-serrate, the slender petioles as long as the blades or shorter, puberulent and with scattered glandular hairs; peduncles puberulent, shorter than the petioles, erect, usually 1-flowered, rarely 2-flowered; pedicels puberulent, somewhat shorter than the peduncles; bracts thin, broad, ciliate; ovary bristly; hypanthium and sepals pilose, reddish-yellow; sepals linear to linear-spatulate, acute, reflexed, 6–8 mm. long, about twice as long as the cylindric-campanulate hypanthium, and one third longer than the petals and stamens; anthers ovate, obtuse, 1.5 mm. long; style glabrous; berry purple, globose, 1–1.5 cm. in diameter, rather densely prickly.

TYPE LOCALITY: In woods of *Pinus ponderosa*, in the higher elevations of the Pinos Altos and Mogollon mountains, New Mexico.
DISTRIBUTION: Mountains of New Mexico and Arizona.
ILLUSTRATION: Mém. Soc. Genève 35[3]: *f. 98.*

17. **Grossularia binominata** (Heller) Coville & Britton.

Ribes ambiguum S. Wats. Proc. Am. Acad. **18**: 193. 1883. Not *R. ambiguum* Maxim. 1874.
Ribes montanum Howell, Fl. NW. Am. 1: 210. 1898. Not *R. montanum* Philippi, 1859–1860.
Ribes binominatum Heller, Cat. N. Am. Pl. ed. 2. 5. 1900.

Stems trailing, not bristly, 1.3 m. long or less, the young twigs pubescent; nodal spines usually triple, less than 1 cm. long. Leaves suborbicular to ovate-orbicular, thin, 2–6 cm. wide, deeply 3-lobed or sometimes 5-lobed, incisely dentate-crenate, cordate at the base, finely pubescent above, densely pubescent beneath, not glandular, the villous and eglandular hairy petioles about as long as the blades; peduncles short, 1- to 3-flowered, villous and with some glandular hairs; bracts ovate-oblong, shorter than or exceeding the pedicels; ovary bristly; hypanthium green, villous, short-cylindric, about 2 mm. long; sepals greenish-white, villous, 4–6 mm. long; petals narrowly oblong, white, 2 or 3 mm. long, somewhat shorter than the stamens; anthers elliptic, obtuse, about 1.5 mm. long; style glabrous; berry about 1 cm. in diameter, densely covered with yellowish spines.

TYPE LOCALITY: Forests of the Siskiyou mountains near the summit.
DISTRIBUTION: Northern California and southern Oregon.
ILLUSTRATION: Mém. Soc. Genève 35^3: *f. 97 b.*

18. **Grossularia Watsoniana** (Koehne) Coville & Britton.

Ribes ambiguum S. Wats. Proc. Am. Acad. **18**: 193, in part. 1883.
Ribes Watsonianum Koehne, Deuts. Dendr. 197. 1893.

A plant with erect or ascending stems 1 to 2 m. high, not bristly; nodal spines usually triple, subulate, stiff, 1 cm. or less long. Leaves membranous, nearly orbicular in outline, 3–5 cm. wide, usually rather deeply 3–5-lobed, coarsely crenate-dentate, cordate or subtruncate at the base, sparingly pubescent on the veins and with some stalked glands, the villous and glandular-pubescent petioles about as long as the blades; peduncles villous and glandular-pubescent, slender, 1–3-flowered, as long as the petioles or shorter; bracts ovate, glandular-pubescent, shorter than the pedicels; ovary densely covered with weak, mostly gland-tipped bristles; hypanthium green, campanulate, sparingly pubescent, 2–3 mm. long; sepals green, pubescent, at least toward their tips, 6–8 mm. long; petals narrow, white, about three fourths the length of the sepals; stamens about as long as the petals; anthers elliptic, obtuse, about 1 mm. long; style glabrous; berry about 1 cm. in diameter, densely beset with acicular bristles.

TYPE LOCALITY: Washington.
DISTRIBUTION: Cascade mountains, southern Washington.
ILLUSTRATION: Mém. Soc. Genève 35^3: *f. 97 a.*

19. **Grossularia tularensis** Coville, sp. nov.

Stems trailing; young twigs with villous pubescence and weak gland-tipped bristles; nodal spines triple, 1 cm. or less in length, stramineous to light-brown. Leaf-blades 2–5 cm. broad, orbicular-ovate, cordate at the base, 3–5-cleft, the lobes incised and dentate, villous and glandular-hairy on both surfaces like the petioles; peduncles 1–2 cm. long, villous and glandular-hairy, mostly 1-flowered; bracts orbicular-obovate, usually lobed, 2–4 mm. long; pedicels usually shorter than the bracts; ovary bristly and glandular-hairy; hypanthium 2–3 mm. in length, about as broad as long, green, villous; sepals green, linear-oblong, about 6 mm. in length, villous; petals 4–5 mm. long; stamens equaling the petals, the anthers 2 mm. in length, oblong-ovate, obtuse; styles smooth, about as long as the sepals; berry about 1 cm. in diameter, covered with stramineous spines.

Type collected at Giant Forest, Tulare County, California, August, 1905, *Katharine Brandegee.*

20. **Grossularia madrensis** Coville & Rose.

Ribes madrense Coville & Rose, Smithson. Misc. Coll. **50**: 32. 1907.

Branches slender, slightly pubescent or glabrous, not bristly, the young shoots puberulent; nodal spines few, subulate, less than 1 cm. long. Leaves rather firm in texture, 3 cm. wide or less, orbicular to broadly ovate in outline, deeply 3–5-lobed, crenate-dentate, cordate to obtuse at the base, glandular and pubescent on both sides, the petioles as long as the blades or shorter, glandular-pubescent; peduncles 1- or 2-flowered, mostly shorter than the

petioles, glandular-pubescent; bracts broadly ovate, obtuse, glandular-pubescent, longer than the short pedicels; ovary smooth; hypanthium glabrous, 3 mm. long; sepals sparingly pubescent, about 6 mm. long; petals dark-red, about two-thirds as long as the sepals; style glabrous; stamens about three fourths as long as the petals; anthers oblong, about 1.5 mm. long; berry smooth, globose, 8 mm. or more in diameter.

TYPE LOCALITY: Near Quebrada Honda, Durango.
DISTRIBUTION: Known only from the type locality.

21. **Grossularia microphylla** (H.B.K.) Coville & Britton.

Ribes microphyllum H.B.K. Nov. Gen. & Sp. 6: 62. 1823.
Ribes subvestitum microphyllum Zabel, Handb. Laubh. Deuts. Dendr. Ges. 36. 1903.

A shrub 1–2 m. high, the young twigs villous. Leaves ovate-orbicular to reniform-orbicular in outline, 3–5-lobed and incisely dentate, thin, 2.5 cm wide or less, somewhat pubescent on both sides, the villous petioles shorter than the blades; peduncles 1- or 2-flowered, shorter than the leaves, villous and with some glandular hairs; bracts broad, membranous, glandular and pubescent, longer than the very short pedicels; ovary glabrous; hypanthium cylindric, yellow or reddish, loosely pubescent and glandular, about 6 mm. long and 3 mm. thick; sepals lanceolate, reddish-yellow, loosely pubescent, about as long as the hypanthium; petals obovate to spatulate, retuse, shorter than the sepals; stamens about as long as the petals, the oblong anthers obtuse; style glabrous; berry globose, glabrous, about 8 mm. in diameter.

TYPE LOCALITY: El Guarda, Mexico.
DISTRIBUTION: States of Mexico, Michoacan, and Vera Cruz.
ILLUSTRATION: Mém. Soc. Genève 35[3]: *f. 104*.

22. **Grossularia leptantha** (A. Gray) Coville & Britton.

Ribes leptanthum A. Gray, Mem. Am. Acad. II. 4: 53. 1849.
Ribes leptanthum veganum Cockerell, Proc. Biol. Soc. Wash. 15: 99. 1902.
Ribes leptanthum genuinum Jancz. Mém. Soc. Genève 35: 380. 1907.

A shrub 2 m. high or less, the branches smooth or sometimes bristly; nodal spines acicular, 0.5–1.5 cm. long. Leaves orbicular or reniform-orbicular in outline, 3-cleft or 5-cleft, crenate-dentate, truncate at base or cordate with a usually wide sinus, thin, 0.5–2 cm. wide, varying from nearly or quite glabrous to pubescent on both sides and somewhat glandular; the petioles as long as the blades or shorter, more or less pubescent, sometimes with some glandular hairs; peduncles 1- or 2-flowered, shorter than the leaves; pedicels very short or none; bracts small, ovate or rounded; ovary glabrous or sometimes glandular-pubescent; hypanthium greenish, nearly cylindric, 4–6 mm. long, about half as thick as long; sepals greenish-white, pubescent, about as long as the tube; petals spatulate, white or tinged with pink, about half as long as the sepals and as long as the stamens; anthers oval, notched; style glabrous, 2-fid at the apex; berry 6–8 mm. in diameter, glabrous or glandular-hispid.

TYPE LOCALITY: Rocky banks of the Rio del Norte [Rio Grande] and ravines near Santa Fé [New Mexico].
DISTRIBUTION: New Mexico, Colorado, Utah, and Arizona.
ILLUSTRATIONS: C. K. Schneid. Handb. Laubh. 1: *f. 262 x, y*; Jancz. *loc. cit. f. 105*; Gartenflora 53: *f. 60*.

23. **Grossularia lasiantha** (Greene) Coville & Britton.

Ribes lasianthum Greene, Pittonia 3: 22. 1896.

Low and with stout spreading branches, little over 6 dm. high, the branches glabrous, the young shoots puberulent; nodal spines mostly 3 together, subulate, yellowish, 1.5 cm. long or less. Leaves reniform-orbicular, 3–5-lobed, crenate-dentate, 1–2 cm. wide, glandular and sparingly pubescent on both sides, or almost glabrous, rather firm in texture, the densely pubescent petioles as long as the blades or shorter and bearing some gland-tipped hairs; peduncles pubescent, 2–4-flowered, about as long as the petioles; pedicels shorter than the broad pubescent bracts; ovary glabrous or with a few hairs; hypanthium yellow, about 4–5 mm. long, cylindric, narrow, pubescent; sepals oblong-spatulate, yellow, 2.5–3.5 mm. long; petals spatulate, shorter than the sepals, about as long as the stamens.

TYPE LOCALITY: Above Donner Lake, toward Castle Peak, California.
DISTRIBUTION: High elevations in the Sierra Nevada, California.

24. **Grossularia quercetorum** (Greene) Coville & Britton.

Ribes quercetorum Greene, Bull. Calif. Acad. 1: 83. 1885.
Ribes Congdoni Heller, Muhlenbergia 1: 101. 1904.
Ribes leptanthum quercetorum Jancz. Mém. Soc. Genève **35**: 380. 1907.
Ribes velutinum Congdoni Jancz. Mém. Soc. Genève **35**: 381. 1907.

Esetose, or sparingly bristly, 1–1.5 m. high, the bark gray-brown; nodal spines usually solitary, straight or slightly curved, 1 cm. long or less; young shoots pubescent. Leaves suborbicular in outline, 1–2 cm. wide, 3–5-cleft, rather thin, the lobes dentate, both surfaces finely pubescent or nearly glabrous, not glandular or with few glands, the base truncate or subcordate, the pubescent petioles mostly shorter than the blades; peduncles pubescent, about as long as the blades, 2–3-flowered; bracts broad, shorter than the pedicels; ovary glabrous; hypanthium yellow, pubescent, about 2.5–3 mm. long, short-cylindric, as long as or somewhat shorter than the yellow pubescent or ciliate sepals; petals shorter than the sepals, a little longer than the stamens; anthers short-oblong; style glabrous; berry smooth, globose, about 8 mm. in diameter.

TYPE LOCALITY: El Paso de Robles, California.
DISTRIBUTION: Middle California to Lower California.

25. **Grossularia velutina** (Greene) Coville & Britton.

Ribes leptanthum brachyanthum A. Gray, Bot. Calif. 1: 205. 1876.
Ribes velutinum Greene, Bull. Calif. Acad. 1: 83. 1885.
Ribes brachyanthum Card, Bush Fruits 460. 1898.
Ribes glanduliferum Heller, Muhlenbergia **2**: 56. 1905.
Ribes Stanfordii Elmer, Bot. Gaz. **41**: 315. 1906.
Ribes velutinum brachyanthum Jancz. Mém. Soc. Genève **35**: 381. 1907.
Ribes velutinum Greeneianum Jancz. Mém. Soc. Genève **35**: 381. 1907.

A shrub 2 m. high or less, with recurved branches devoid of bristles, the young shoots finely pubescent; nodal spines pale, acicular, 0.5–2 cm. long, straight or slightly curved. Leaves suborbicular in outline, 3–5-cleft, crenate, 1–1.5 cm. wide, cordate or truncate at the base, finely pubescent on both sides, or sometimes nearly glabrous; petioles pubescent and sometimes with some gland-tipped hairs, mostly shorter than the blades; peduncles 1–3-flowered, shorter than the leaves; bracts broad, pubescent, longer than the pedicels, or shorter; ovary densely pubescent, often glandular-hairy, rarely glabrous; hypanthium short-cylindric, pubescent, about 2 mm. long and 3 mm. in diameter; sepals yellow, somewhat pubescent, about 3 mm. long; petals oblong to obovate, yellow, 2–2.5 mm. long; stamens not exceeding the petals, the anthers obtuse, 1–1.5 mm. long; style glabrous; berry yellow, about 7 mm. in diameter.

TYPE LOCALITY: Northern part of California and regions adjacent.
DISTRIBUTION: Oregon to Nevada, Utah, northern Arizona, and the mountains of southern California.
ILLUSTRATIONS: C. K. Schneid. Handb. Laubh. 1: *f. 262 v, w*; Jancz. *loc. cit. f. 106.*

26. **Grossularia Cynosbati** (L.) Mill. Gard. Dict. ed. 8. no. 5. 1768.

Ribes Cynosbati L. Sp. Pl. 202. 1753.
Ribes gracile Michx. Fl. Bor. Am. 1: 111. 1803.
Ribes Cynosbati glabratum Fernald, Rhodora 7: 156. 1905.

Stems usually less than 1.5 m. high, the nodal spines slender, solitary or sometimes 2 or 3 together, erect or spreading, 6–10 mm. long, or often wanting; prickles few and weak or none. Petioles 12–35 mm. long, slender, generally pubescent, sometimes with gland-tipped hairs; leaf-blades nearly orbicular, 3–5 cm. broad, somewhat pubescent, at least when young, truncate or cordate at the base, deeply 3–5-lobed, the lobes crenate-dentate or incised; peduncles and pedicels slender, the peduncles 1–3-flowered; bracts small, ovate, much shorter than the pedicels; ovary setose; hypanthium green, ovoid-cylindric, much thicker than the ovary, 3–4 mm. long, about as thick as long, glabrous; sepals green, oblong, shorter than the hypanthium; petals obovate, shorter than the sepals; stamens a little longer

than the petals, the anthers oblong; style pubescent below; berry globose to oblong, wine-colored, 8–12 mm. in diameter.

TYPE LOCALITY: Canada.
DISTRIBUTION: New Brunswick to North Carolina, Alabama, Missouri, and Manitoba.
ILLUSTRATIONS: Jacq. Hort. Vind. *pl. 123*; Guimp. Otto & Hayne, Abb. Holz. *pl. 135*; Loud. Arb. *f. 719*; Mém. Soc. Genève 3[2]: *pl. 1, f. 3*; Britt. & Brown, Ill. Fl. *f. 1865*; Card, Bush Fruits *f. 94*; Cycl. Am. Hort. *f. 2121*; Mém. Soc. Genève 35[3]: *f. 108*.

27. **Grossularia missouriensis** (Nutt.) Coville & Britton.

Ribes gracile Pursh, Fl. Am. Sept. 165. 1814. Not *R. gracile* Michx. 1803.
Ribes missouriense Nutt.; T. & G. Fl. N. Am. 1: 548. 1840.

A shrub 1–2 m. high, the stems and branches glabrous or sometimes bristly, the young twigs white or whitish; nodal spines 1–3, reddish-brown, stiff, stout or slender, 2 cm. long or less. Leaves suborbicular or reniform-orbicular in outline, 2–6 cm. wide, thin, 3–5-lobed, coarsely dentate, sparingly pubescent or glabrous above, rather copiously pubescent beneath, truncate, broadly cuneate, or subcordate at the base, the petioles pubescent; peduncles slender, often longer than the petioles, 2- or 3-flowered; bracts broad, 2–3 mm. long, pubescent and ciliate; pedicels filiform, nodding, much longer than the bracts; ovary glabrous; hypanthium cylindric, pubescent, about 2.5 mm. long, greenish; sepals linear, 2 or 3 times as long as the hypanthium, greenish-white, sparingly pubescent or glabrous; petals much shorter than the sepals, erose; filaments glabrous, nearly twice as long as the sepals; style about as long as the stamens, pubescent below; berry globose, brown to purple, glabrous, 8–15 mm. in diameter.

TYPE LOCALITY: Independence County, Missouri.
DISTRIBUTION: Illinois to Minnesota, South Dakota, Kansas, Missouri, and Tennessee.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1867* (as *Ribes gracile*); Card, Bush Fruits *f. 86* (as *R. gracile*); C. K. Schneid. Handb. Laubh. 1: *f. 265 e* (as *Ribes rotundifolium*); Mém. Soc. Genève 35[3]: *f. 113* (as *Ribes rotundifolium*).

28. **Grossularia nivea** (Lindl.) Spach, Hist. Vég. 6: 179. 1838.

Ribes niveum Lindl. Bot. Reg. *pl. 1692*. 1834.

Not bristly, 3 m. high or less, the slender glabrous branches upright or ascending, reddish to brown; nodal spines 1–3, stout, brown, 1–2 cm. long. Leaves suborbicular in outline, thin, sparingly pubescent or glabrous, 3–5-lobed, truncate to cuneate and entire at the base, the lobes few-toothed, the slender petioles mostly shorter than the blades; peduncles nodding, slender, 1–4-flowered, glabrous, shorter than the leaves; bracts ovate, small, membranous, much shorter than the filiform pedicels; ovary glabrous; hypanthium white, glabrous, campanulate, about 2 mm. long; sepals white, narrowly lanceolate, 6–8 mm. long; petals white, cuneate, erose, about a fourth as long as the sepals: filaments filiform, pubescent, slightly longer than the sepals; anthers broadly oval, pubescent, about 1 mm. long; style villous below; berry globose, glabrous, bluish-black, subacid, about 8 mm. in diameter.

TYPE LOCALITY: Northwest America.
DISTRIBUTION: Idaho and eastern Washington to northern Nevada.
ILLUSTRATIONS: Lindl. *loc. cit.*; Loud. Arb. *f. 718*; C. K. Schneid. Handb. Laubh. 1: *f. 262 h–l*; Mém. Soc. Genève 35[3]: *f. 114*.

29. **Grossularia curvata** (Small) Coville & Britton.

Ribes gracile T. & G. Fl. N. Am. 1: 546. 1840. Not *R. gracile* Michx. 1803.
Ribes curvatum Small, Bull. Torrey Club 23: 295. 1896.

A diffusely branched glabrate shrub, 5–8 dm. tall, armed with subulate nodal spines 4–6 mm. long, the stem with loose exfoliating bark, the branches red-brown or purplish, the recurved or drooping branchlets reddish. Leaf-blades suborbicular, 1–3 cm. in diameter, cuneate to subcordate at base, sparingly pubescent, 3–5-lobed, the lobes toothed; petioles slender, as long as the blade or shorter, usually somewhat villous; peduncles 7–8 mm. long, 1–5-flowered; pedicels ultimately nearly as long as the peduncles, subtended by ovate, often 3-lobed, ciliate bracts; hypanthium 1.5–2 mm. long, subcampanulate, glabrous; ovary resiniferous-glandular or pubescent; sepals linear or linear-spatulate, 6–7 mm. long, white,

ciliate, reflexed and recurved, obtuse, the edges hyaline; petals lanceolate to cuneate, 1.5 mm. long, white, acute or obtuse, with lateral teeth and one or two nerves; stamens conspicuous, 7 mm. long, erect; filaments villous; anthers linear-oblong, recurved, glabrous or pubescent; berry globose, 6–8 mm. in diameter, crowned by the persistent stamens.

TYPE LOCALITY: Stone Mountain, Georgia.
DISTRIBUTION: Georgia, Alabama, Louisiana, and Texas.
ILLUSTRATION: Mém. Soc. Genève **35**[3]: *f. 115*.

30. **Grossularia cognata** (Greene) Coville & Britton.

Ribes cognatum Greene, Pittonia **3**: 115. 1896.
Ribes palousense Elmer; Jancz. Mém. Soc. Genève **35**: 382; hyponym. 1907.

A much-branched shrub, 2–3.5 m. high, the young branches white or gray, bristly, or sometimes smooth; nodal spines subulate, 1–1.5 cm. long. Leaves suborbicular to reniform-orbicular in outline, 1.5–4 cm. wide, thin, 3–5-lobed, incised, crenate-dentate, more or less pubescent on both sides and minutely glandular, the villous and glandular-pubescent petioles as long as the blades or shorter; peduncles 2–5-flowered, nodding, mostly shorter than the petioles; bracts glandular-pubescent, 1.5–3 mm. long, equaling or a little shorter than the pedicels; ovary glabrous; hypanthium greenish-white, sparingly hirsute, nearly cylindric, 3–6 mm. long; sepals white or pink, narrowly oblong, one half to two thirds as long as the hypanthium; petals obovate, truncate or retuse, about half as long as the sepals and a little longer than the filaments; anthers obtuse; style pubescent below; berry smooth, about 10 mm. in diameter.

TYPE LOCALITY: River banks at Pendleton, Oregon.
DISTRIBUTION: Eastern Washington and Oregon.
ILLUSTRATION: Card, Bush Fruits *f. 90* (as *Ribes irriguum*).

31. **Grossularia setosa** (Lindl.) Coville & Britton.

Ribes setosum Lindl. Trans. Hort. Soc. London **7**: 243. 1828.
Ribes saximontanum E. Nelson, Bot. Gaz. **30**: 19. 1900.
Ribes camporum Blankinship, Mont. Agric. Coll. Sci. Stud. **1**: 63. 1905.

Plant usually less than 1 m. high, the shoots reddish-brown and usually bristly; nodal spines subulate, 2 cm. long or less. Leaves suborbicular in outline, 3–5-lobed, thin, crenate-dentate, cordate, truncate, or sometimes narrowed at the base, 1–4 cm. wide, finely pubescent and usually somewhat glandular, the pubescent and usually more or less glandular petioles as long as the blades or shorter; peduncles 1–3-flowered, shorter than the leaves; bracts thin, 1–2 mm. long, mostly somewhat shorter than the pedicels; ovary glabrous or rarely with some glandular hairs; hypanthium white, glabrous, cylindric-campanulate, 5–8 mm. long, about twice as long as the white sepals; petals one half to two thirds as long as the sepals, about as long as the stamens; anthers blunt; style pubescent below; berry red to black, smooth or somewhat bristly, 8–12 mm. in diameter.

TYPE LOCALITY: Not recorded.
DISTRIBUTION: Idaho to Montana, Assiniboia, South Dakota, Nebraska, and Wyoming.
ILLUSTRATIONS: Bot. Reg. *pl. 1237*; Loud. Arb. *f. 716*; Britt. & Brown, Ill. Fl. *f. 1866*; Card, Bush Fruits *f. 91*; C. K. Schneid. Handb. Laubh. **1**: *f. 265f*; Mém. Soc. Genève **35**[3]: *f. 107*.

32. **Grossularia irrigua** (Dougl.) Coville & Britton.

Ribes irriguum Dougl. Trans. Hort. Soc. London **7**: 516. 1830.
Ribes divaricatum irriguum A. Gray, Am. Nat. **10**: 273. 1876.
Ribes leucoderme Heller, Bull. Torrey Club **24**: 93. 1897.
Ribes oxyacanthoides leucoderme Jancz. Mém. Soc. Genève **35**: 388. 1907.

A shrub 1–3 m. high, the older branches usually bristly, gray to brown, the young shoots often without bristles, pale-gray, pubescent or rarely glabrous; nodal spines subulate, usually about 1 cm. long. Leaves thin, 3–5-lobed, coarsely incised-dentate, 3–7 cm. wide, mostly cordate at the base, nearly or quite glabrous above, more or less pubescent and minutely glandular beneath, the villous and glandular-pubescent petioles as long as the blades or shorter; peduncles nodding, 1–3-flowered, shorter than the leaves; bracts ciliate and glandular, about as long as the short pedicels; ovary glabrous; hypanthium greenish, glabrous, cylindric-campanulate, 3–4 mm. long; sepals greenish-white, 5-8 mm. long; petals obovate, white, about half as long as the sepals; stamens about as long as the petals; style pubescent below; berry globose, smooth, 7–13 mm. in diameter.

TYPE LOCALITY: On the Blue Mountains, in lat. 46° 33′.
DISTRIBUTION: Eastern Oregon and Washington, interior of British Columbia, Idaho, and western Montana.
ILLUSTRATIONS: Loud. Arb. *f. 721;* Jancz. *loc. cit. f. 110 c.*

33. **Grossularia oxyacanthoides** (L.) Mill. Gard. Dict. ed. 8. no. 4. 1768.

Ribes oxyacanthoides L. Sp. Pl. 201. 1753.

A low shrub the older branches usually very bristly, the young twigs rarely without bristles, pubescent or glabrate; nodal spines subulate, rather stout, mostly 1 cm. long or less. Leaves suborbicular in outline or somewhat broader than long, incisely 5-lobed and dentate or crenate-dentate, 2–4 cm. wide, cordate to broadly cuneate at the base, more or less pubescent and with some glandular hairs, at least on the petioles, usually rugose at maturity; peduncles very short, scarcely exserted from the bud-scales, mostly 1–2-flowered; pedicels short; ovary glabrous; hypanthium greenish-white, glabrous; sepals white, glabrous, 2.5–4 mm. long, a little longer than the hypanthium; petals obovate, about as long as the stamens, about two thirds the length of the sepals; berry globose, smooth, about 1 cm. in diameter.

TYPE LOCALITY: Canada.
DISTRIBUTION: Hudson Bay to Yukon, British Columbia, Alberta, Montana, North Dakota, and northern Michigan.
ILLUSTRATIONS: Dill. Hort. Elth. *pl. 139, f. 166;* Mém. Soc. Genève 3^2: *pl. 1, f. 2;* Loud. Arb. *f. 715.*

34. **Grossularia reclinata** (L.) Mill. Gard. Dict. ed. 8. no. 1. 1768.

Ribes reclinatum L. Sp. Pl. 201. 1753.
Ribes Grossularia L. Sp. Pl. 201. 1753.
Ribes Uva-crispa L. Sp. Pl. 201. 1753.
Grossularia Uva-crispa Mill. Gard. Dict. ed. 8. no. 3. 1768.
Grossularia vulgaris Spach, Hist. Vég. 6: 174. 1838.

A shrub about 1 m. high, the stems ascending or reclining, the older wood often bristly; nodal spines stout, mostly 3 together, sometimes solitary, 1.5 cm. long or less. Leaves rather firm in texture, suborbicular in outline, 3–5-lobed, crenate-dentate, broadly cuneate to cordate at the base, 2–6 cm. broad, pubescent, the petioles sometimes bearing gland-tipped hairs; peduncles slender, nodding, 1- or 2-flowered, mostly shorter than the petioles; bracts thin, 1–2 mm. long, shorter than the glandular-pubescent pedicels; ovary pubescent and often glandular-villous; hypanthium pubescent, greenish, short-campanulate, 3–4 mm. long, about as long as the usually pubescent greenish sepals; petals obovate, whitish, about as long as the filaments; stamens not longer than the sepals; style pubescent below; berry globose to oval, yellowish to red, more or less pubescent and glandular-bristly.

TYPE LOCALITY: Germany and Switzerland.
DISTRIBUTION: Escaped from cultivation in New York and New Jersey.
ILLUSTRATIONS: Engl. Bot. *pl. 1292, 2057;* Fl. Dan. *pl. 546;* Sturm, Deuts. Fl. 1^4: [*pl. 4*]; 1^{44}: [*pl. 13*]; Fl. Deuts. ed. 5, *pl. 2286;* Britt. & Brown, Ill. Fl. *f. 1870;* Card, Bush Fruits *f. 93.*

35. **Grossularia rotundifolia** (Michx.) Coville & Britton.

Ribes rotundifolium Michx. Fl. Bor. Am. 1: 110. 1803.
Ribes triflorum Willd. Hort. Berol. *pl. 61.* 1806.
Ribes stamineum Hornem. Hort. Hafn. 237. 1813.
Grossularia triflora Spach, Hist. Vég. 6: 176. 1838.

Stems usually less than 1 m. high, the slender branches not bristly, brown, or the young shoots gray; nodal spines few and small, seldom over 5 mm. long. Leaves ovate-orbicular to suborbicular in outline, 2–5 cm. wide, mostly 3-lobed, coarsely dentate, broadly cuneate to subcordate at the base, minutely pubescent, or almost glabrous, not glandular, the glabrous or sparingly pubescent petioles mostly shorter than the blades; peduncles 1–3-flowered, filiform, drooping, shorter than the petioles; pedicels much longer than the small bracts; ovary glabrous; hypanthium campanulate, purplish, about 2 mm. long; sepals linear, greenish-purple, about twice as long as the hypanthium; petals obovate; stamens somewhat longer than the sepals; berry globose, smooth, 6–8 mm. in diameter, purplish.

TYPE LOCALITY: Mountains of Carolina.
DISTRIBUTION: Massachusetts to New York and North Carolina.
ILLUSTRATIONS: Willd. Hort. Berol. *pl. 61*; Bot. Cab. *pl. 1094*; Mém. Soc. Genève 3²: *pl. 1, f. 4*; Guimp. Otto & Hayne, Abb. Holz. *pl. 3*; Loud. Arb. *f. 717*; Britt. & Brown, Ill. Fl. *f. 1869*; Card, Bush Fruits *f. 88*.

36. **Grossularia divaricata** (Dougl.) Coville & Britton.

Ribes divaricatum Dougl. Trans. Hort. Soc. London 7: 515. 1830.
Ribes villosum Nutt. in T. & G. Fl. N. Am. 1: 547. 1840. Not *R. villosum* Roxb. 1824.
Ribes tomentosum K. Koch, Wochenschr. Gärt. & Pfl. 2: 138. 1859.
Ribes divaricatum glabriflorum Koehne, Deuts. Dendr. 200. 1893.
Ribes divaricatum pubiflorum Koehne, Deuts. Dendr. 200. 1893.
Ribes divaricatum villosum Zabel, Handb. Laubh. Deuts. Dendr. Ges. 137. 1903.
Ribes Suksdorfii Heller, Muhlenbergia 3: 11. 1907.
Ribes divaricatum Douglasii Jancz. Mém. Soc. Genève 35: 391. 1907.
Ribes divaricatum montanum Jancz. Mém. Soc. Genève 35: 391. 1907.

A much-branched shrub, 2–3.5 m. high, the branches sometimes bristly, but commonly without bristles, gray to brown; nodal spines stout, 1–2 cm. long, often deflexed, sometimes wanting. Leaves thin, suborbicular or reniform-orbicular in outline, 2–6 cm. wide, mostly 5-lobed, sometimes 3-lobed, coarsely crenate-dentate, cordate to subtruncate at the base, the upper surface usually bearing some long hairs, the under side short-hairy along the veins or glabrous, the slender pubescent or glabrous petioles as long as the blades or shorter; peduncles slender, about as long as the petioles, drooping, 2–4-flowered; bracts ovate, much shorter than the filiform pedicels; ovary glabrous; hypanthium campanulate, 2–3 mm. long, greenish-purple, glabrous or sparingly villous; sepals oblong, purplish or greenish, 2–3 times as long as the hypanthium; petals obovate, white or purplish, less than half as long as the sepals; stamens somewhat longer than the sepals; style villous; berry smooth, globular, black or dark-purple, about 1 cm. in diameter.

TYPE LOCALITY: Northwest coast of North America.
DISTRIBUTION; British Columbia to middle California.
ILLUSTRATION: Bot. Reg. *pl. 1359;* Loud. Arb. *f. 720;* Jancz. *loc. cit. f. 112;* Card, Bush Fruits *f. 87;* C. K. Schneid. Handb. Laubh. 1: *f. 265 g, h.*

37. **Grossularia Parishii** (Heller) Coville & Britton.

Ribes Parishii Heller, Muhlenbergia 1: 134. 1906.

Branches esetose, or rarely somewhat bristly, gray, pubescent when young; nodal spines solitary, subulate, deflexed or spreading, 1 cm. long or less. Leaves suborbicular to reniform-orbicular in outline, 2–5 cm. broad, 3–5-lobed, crenate-dentate, subtruncate to cordate at the base, densely pubescent beneath, glabrous or very nearly so above, eglandular, the slender pubescent petioles about as long as the blades; peduncles nodding, pubescent, 2–5-flowered, shorter than the petioles; bracts villous, 1–2 mm. long, much shorter than the pedicels; ovary glabrous; hypanthium purplish-red, pubescent, campanulate, about 4 mm. long; sepals purplish, more or less pubescent, 1.5–2 times as long as the hypanthium; petals broadly obovate, rose-colored, 2 mm. long; stamens nearly as long as the sepals; style villous below.

TYPE LOCALITY: San Bernardino Valley, California.
DISTRIBUTION: Type locality and vicinity.

38. **Grossularia inermis** (Rydb.) Coville & Britton.

Ribes inerme Rydb. Mem. N. Y. Bot. Gard. 1: 202. 1900.
Ribes hirtellum Purpusi Koehne; Späth, Cat. 119. 1899–1900.
Ribes Purpusi Koehne; Blankinship, Mont. Agric. Coll. Sci. Stud. 1: 64. 1905.
Ribes vallicola Greene; Rydb. Fl. Colo. 176, 177. 1906.
Ribes oxyacanthoides nevadense Jancz. Mém. Soc. Genève 35: 387. 1907.
Ribes oxyacanthoides Purpusii Jancz. Mém. Soc. Genève 35: 388. 1907.
Ribes oxyacanthoides vagum Jancz. Mém. Soc. Genève 35: 388. 1907.
Ribes oxyacanthoides irriguum Jancz. Mém. Soc. Genève 35: 388. 1907. (Excluding the plant of Douglas.)

A plant with branches glabrous and esetose, or rarely with a few scattered bristles; nodal spines few, 1 cm. long or less, rarely wanting. Leaves orbicular or reniform-orbicular in outline, rather thin, 3–5-lobed, crenate-dentate, truncate to cordate at the base, 1–6 cm. broad, glabrous or in Rocky Mountain specimens sometimes pubescent and glandular;

peduncles mostly shorter than the petioles, 1–4-flowered; bracts small, much shorter than the pedicels; ovary glabrous; hypanthium glabrous, narrowly campanulate, green, 2.5–3.5 mm. long, a little longer than the green or purplish glabrous sepals; petals pink or white, oblong to obovate, about a third as long as the sepals; stamens about twice as long as the petals, shorter than the sepals; berry wine-colored, smooth, about 8 mm. in diameter.

TYPE LOCALITY: Slough Creek, Yellowstone Park.
DISTRIBUTION: Montana to the interior of British Columbia, eastern Washington, Oregon, and California, Utah, and New Mexico.
ILLUSTRATIONS: Jancz. *loc. cit. 110 a, b, d, e.*

39. **Grossularia klamathensis** Coville, sp. nov.

A shrub 1–2 m. high, erect, seldom with any bristles, the young twigs white and glabrous; nodal spines usually single, 1 cm. or less in length, often wanting. Leaf-blades ovate-orbicular, often broader than long, 2–5 cm. wide, cordate at the base, 3–5-lobed, crenate, villous on both surfaces; petioles pubescent along the upper side, glabrous on the lower, often fibrillate toward the base; peduncles commonly 1–2 cm. long, glabrous, 2–5-flowered; bracts ovate, ciliate, about 2 mm. long; pedicels 8 mm. or less long, glabrous; ovary glabrous; hypanthium sparingly villous or glabrous, green, about 2 mm. long; sepals linear-oblong, about 4 mm. in length, green, often purple-margined, sparingly villous or glabrous; petals half the length of the sepals or less, white, fan-shaped; stamens equaling the sepals or nearly so; styles hairy; berry black with a bloom, 6–10 mm. in diameter.

Type collected at Keno, Klamath County, Oregon, May 10, 1898, *Elmer I. Applegate 2008.*
DISTRIBUTION: Southern Oregon and northeastern California.

40. **Grossularia hirtella** (Michx.) Spach, Hist. Vég. **6**: 180. 1838.

Ribes hirtellum Michx. Fl. Bor. Am. **1**: 111. 1803.
Ribes saxosum Hook. Fl. Bor. Am. 1: 231. 1832.
Ribes oxyacanthoides saxosum Coville, Contr. U. S. Nat. Herb. **4**: 100. 1893. (As to name.)
Ribes huronense Rydb.; Britton, Man. 487. 1901.
Ribes oxyacanthoides calcicola Fernald, Rhodora **7**: 155. 1905.

A shrub 6–12 dm. high, with slender, mostly esetose branches, but sometimes bristly; bark of the older branches dark-brown, the young shoots gray and glabrous; nodal spines usually wanting, if present subulate, 12 mm. long or less. Leaves ovate-orbicular to reniform-orbicular in outline, incisely 3–5-lobed and dentate, mostly cuneate at the base, varying to subcordate, thin, 2–6 cm. wide, glabrous or sparingly pubescent, not glandular, the slender petioles often bearing long hairs; peduncles 1–3-flowered, not longer than the petioles; bracts only about 1.5 mm. long, much shorter than the pedicels; ovary glabrous, rarely pubescent or with stalked glands; hypanthium greenish, narrowly campanulate, glabrous or sparingly villous, about 3 mm. long, equaling or a little shorter than the green or purplish sepals; petals obovate, about half as long as the stamens; style villous; berry glabrous, or rarely with stalked glands, purple or black, globose, 8–10 mm. in diameter.

TYPE LOCALITY: Saguenay River (Quebec).
DISTRIBUTION: Newfoundland to New Jersey, Pennsylvania, West Virginia, South Dakota, and Manitoba.
ILLUSTRATIONS: Bot. Mag. *pl. 6892;* Britt. & Brown, Ill. Fl. *f. 1868;* Card, Bush Fruits *f. 92;* Cycl. Am. Hort. *f. 2120* (all as *Ribes oxyacanthoides*); Mém. Soc. Genève 35³: *f. 111* (as *Ribes gracile*).

EXCLUDED SPECIES

Ribes resinosum Pursh, Bot. Mag. *pl. 1583* (1813), supposed to have been collected by Fraser in the mountains of North America, is *Ribes orientale* Desf., of Asia.

Family 14. **PLATANACEAE**

By Henry Allan Gleason

Trees or shrubs, with exfoliating bark. Leaves broad, alternate, stipulate, long-petioled, palmately 3–5-nerved and lobed, cuneate to cordate at the base. Stipules membranous, lobed or entire, connate, deciduous. Petioles dilated at the base and covering the buds. Inflorescence of spherical unisexual heads, which are racemose or spicate, or solitary and terminal, on long slender persistent peduncles. Flowers monoecious, typically isomerous. Sepals 3 or 4, or rarely 6, spreading, hairy without. Petals alternating with the sepals, spatulate, membranous, lobed or emarginate. Stamens in ♂ flowers typically alternate with the petals; filaments short; anthers linear, the connective dilated at the apex and covering the anthers. Staminodes in ♀ flowers caducous. Carpels 3 or 4, distinct, opposite the petals and adherent to them; ovary linear; style linear, recurved at the tip, and stigmatose on the inner side. Ovule 1 (rarely 2), pendulous, orthotropous. Fruit an achene, indehiscent, linear, 4-sided, surrounded by long hairs at the base, truncate and tipped with the persistent style, aggregated in dense spherical heads.

1. **PLATANUS** L. Sp. Pl. 999. 1753.

Characters of the family.

Type species, *Platanus orientalis* L.

Heads 3–5 on each peduncle.
- Leaves broadly rounded at base, the lobes 3, all erect. — 1. *P. Lindeniana.*
- Leaves truncate to cordate at base, the lobes 3–5, divergent.
  - Heads sessile; fruiting style 2–3 mm. long. — 2. *P. racemosa.*
  - Heads pedicelled; fruiting style 1–2 mm. long. — 3. *P. Wrightii.*

Heads 1 or 2 on each peduncle.
- Leaves persistently and closely cinereous beneath. — 4. *P. mexicana.*
- Leaves green and eventually glabrous beneath.
  - Leaf-lobes entire. — 5. *P. glabrata.*
  - Leaf-lobes with coarse salient teeth. — 6. *P. occidentalis.*

1. **Platanus Lindeniana** Mart. & Gal. Bull. Acad. Roy. Bruxelles **10**[1]: 342. 1843.

A tree, 30–40 m. high; young twigs and petioles ferruginous-pubescent, becoming glabrate with age; leaves broadly rounded at base, 3-lobed, 3-nerved, entire or with a few scattered teeth, 12–18 cm. long and broad, densely tomentose above when young, glabrous at maturity, persistently and softly ferruginous-tomentose beneath; lobes triangular, acute, erect, the middle one about as long as broad and 0.3–0.5 as long as the blade; petioles 2–5 cm. long; stipules bifid; staminate heads 6–10 mm. in diameter; pistillate heads sessile, 2.5 cm. in diameter at maturity; achene 6–8 mm. long, about equaled by the basal hairs, glabrous below, pubescent at the tip, abruptly narrowed into a persistent style 2–3 mm. long.

Type locality: Jalapa, Mexico.
Distribution: Central Mexico.

2. **Platanus racemosa** Nutt. N. Am. Sylva **1**: 47. 1842.

Platanus occidentalis H. & A. Bot. Beech. Voy. 160. 1833. Not *P. occidentalis* L. 1753.
Platanus californica Benth. Bot. Voy. Sulph. 54. 1844.
Platanus mexicana Torr. in Sitgreaves, Rep. Exp. 172. 1853. Not *P. mexicana* Moric. 1830.

A tall tree, 30–35 m. high; bark rough and dark on the old trunks, smooth and pale on the young trunks and branches; twigs tomentose when young; leaves with narrow sinuses, 3–5-nerved, 3–5-lobed, entire or remotely dentate, cordate to truncate at the base, 15–25 cm. long and broad, tomentose on both sides when young, glabrescent above with age; leaf-lobes acuminate, divergent, the middle one about twice as long as broad and at least half as long as the blade; petioles pubescent, 5–8 cm. long; stipules 2–3 cm. long, entire or dentate; peduncles pubescent; fruiting heads 3–5, sessile, 2–2.5 cm. in diameter at maturity; achene 7 mm. long, glabrous, much exceeding the basal hairs, rounded at the apex and tipped with a persistent style 2–3 mm. long.

TYPE LOCALITY: California.
DISTRIBUTION: Central and southern California and Lower California.
ILLUSTRATIONS: Nutt. *loc. cit. pl. 15;* Pacif. R. R. Rep. 6: *pl. 2, f. 10;* Dippel, Handb. Laubh. 3: *f. 151;* Sargent, Silva N. Am. *pl. 328;* Sargent, Man. *f. 272;* Britton, N. Am. Trees *f. 367.*

3. **Platanus Wrightii** S. Wats. Proc. Am. Acad. 10: 349. 1875.

A tree, reaching a height of 25 m., bark smooth, light-colored, becoming rough and dark on the old trunks; twigs tomentose when young; leaves 15–20 cm. long and wide, 3–5-nerved, 3–5-lobed, with narrow sinuses entire or nearly so, truncate or usually cordate with a deep sinus at the base, glabrous above, pubescent beneath; lobes elongate, acute, divergent, the middle one about twice as long as wide and at least half as long as the blade; petioles pubescent or becoming glabrous; stipules dentate or lobed; peduncles tomentose, bearing 3–5 heads; fruiting heads 2–2.5 cm. in diameter, on pedicels about equaling the heads; achene glabrous, about 6 mm. long, exceeding the basal hairs, truncate and tipped with a short style seldom more than 1 mm. long.

TYPE LOCALITY: Southeastern Arizona.
DISTRIBUTION: New Mexico, Arizona, and Sonora.
ILLUSTRATIONS: Sargent, Silva N. Am. *pl. 329;* Sargent, Man. *f. 273;* Britton, N. Am. Trees *f. 366.*

4. **Platanus mexicana** Moric. Pl. Am. Rar. 12. 1830. — Bull. Bot. Seringe 175. 1830.

A tall tree; young twigs and foliage densely pubescent; leaves 8–12 cm. long, 9–15 cm. wide, 3-nerved, 3–5-lobed or rarely with two additional basal lobes, truncate or rounded at the base, in age green and shining above, closely and softly cinereous beneath; lobes divergent, shallow, with broad rounded sinuses, entire, or with a few teeth, acute or short-acuminate, the middle one about as broad as long and less than half as long as the blade; petioles pubescent, 4–6 cm. long; stipules rounded, entire; fruiting peduncles 8–14 cm. long, nearly glabrous; heads usually two, sessile, 2.5 cm. in diameter; achenes 6 mm. long, pubescent, equaled by the basal hairs, narrowed at the tip into a persistent style 2.5 mm. long.

TYPE LOCALITY: Mexico.
DISTRIBUTION: Northeastern and central Mexico.
ILLUSTRATION: Mém. Soc. Genève 6: *pl. 26.*

5. **Platanus glabrata** Fernald, Proc. Am. Acad. 36: 493. 1901.

Platanus Lindeniana S. Wats. Proc. Am. Acad. 18: 155. 1883. Not *P. Lindeniana* Mart. & Gal. 1843.

A tree, with closely and finely pubescent twigs; leaves broad, 8–10 cm. long, 10–12 cm. wide, 3-nerved, 5-lobed, with broad rounded sinuses, truncate at the base, pubescent when young, with age becoming glabrous above and nearly so beneath; lobes short-acuminate, entire, the middle as broad as or broader than long, and less than half as long as the blade; petioles closely pubescent, 4–6 cm. long; stipules lobed or dentate; peduncles 8–10 cm. long, glabrous or nearly so; heads single and terminal, or rarely two and sessile, 1.5–2 cm. in diameter; achenes 5 mm. long, glabrous below, pubescent towards the tip, much longer than the basal hairs, abrubtly narrowed into a short style 1–1.5 mm. long.

TYPE LOCALITY: Monclova, Coahuila.
DISTRIBUTION: Northeastern Mexico.

6. **Platanus occidentalis** L. Sp. Pl. 999. 1753.

Platanus lobata Moench, Meth. 358. 1794.
Platanus hybridus Brot. Fl. Lusit. **2**: 487. 1804.
Platanus vulgaris angulosa Spach, Ann. Sci. Nat. II. 15 : 293. 1841.
Platanus occidentalis hispanica Wesmael, Mém. Soc. Sci. Hainaut III. 1 : 12. *f. 5*. 1867.
Platanus occidentalis lobata Bommer, Les Platanes 17. *f. 5, 6*. 1869.

A tall tree, reaching 50 m. in height; bark thin, smooth, exfoliating in thin plates, or rough on the old trunks; twigs glabrous; young foliage covered with a white deciduous tomentum, becoming glabrous or nearly so at maturity; leaves 15–25 cm. long and wide, broadly deltoid, truncate at the base, 3–5-nerved, 3-lobed or with faint additional lateral lobes, with broad or obscure sinuses, sharply serrate with coarse acuminate teeth; lobes shallow, abruptly acuminate, the middle one much broader than long; petioles pubescent; stipules foliaceous, sharply serrate or lobed; fruiting peduncles 8–15 cm. long; mature heads 2.5–3 cm. in diameter; achene 7–8 mm. long, about equaled by the subtending hairs, glabrous or nearly so at the tip, truncate and tipped with a persistent style, about 1 mm. long.

TYPE LOCALITY: North America.

DISTRIBUTION: New Hampshire to Ontario and Nebraska, south to Florida and Texas.

ILLUSTRATIONS: Catesby, Nat. Hist. Car. *pl. 56*; Wangenh. Nordam. Holz. *pl. 13, f. 31*; Duham. Arb. & Arbust. **2**: *pl. 2*; Abbot, Insects of Georgia *pl. 55*; Michx. f. Hist. Arb. Am. **3**: *pl. 3*; Michx. f. N. Am. Sylva *pl. 63*; Wats. Dendr. **2**: *pl. 100*; Audubon, Birds *pl. 206*; Sargent, Silva N. Am. *pl. 326, 327*; Sargent, Man. *f. 271*; Dippel, Handb. Laubh. **3**: *f. 152*; J. E. Rogers, Tree Book opp. *279*; Britt. & Brown, Ill. Fl. *f. 1881*; Newhall, Trees NE. Am. *f. 26*; Koehne, Deuts. Dendr. *f. 40, A*; Britton, N. Am. Trees *f. 364, 365*.

Family 15. CROSSOSOMATACEAE

By John Kunkel Small

Shrubs or small trees, with rough bitter bark. Leaves alternate, often approximate on short branches or clustered on spurs; blades simple, leathery, entire. Flowers perfect, solitary at the ends of short branches. Hypanthium turbinate. Calyx of 5 persistent sepals. Corolla of 5 white or purplish deciduous petals. Androecium of many stamens, usually 15 or more; anthers oblong to oval. Gynoecium of 3–5 stipitate ultimately distinct carpels borne in the base of the hypanthium. Ovary elongate; styles short, at least during anthesis, or obsolete; stigmas depressed. Ovules several or many, borne in 2 rows. Fruit a cluster of 2–5 follicles. Seeds globular to reniform, each enclosed in a fimbriate aril. Endosperm thin, fleshy.

1. CROSSOSOMA Nutt. Jour. Acad. Phila. II. 1: 150. 1848.

Stems usually much-branched. Leaf-blades pinnately-veined, sessile or nearly so. Flowers pedicelled. Sepals very broad, usually suborbicular, concave. Petals spatulate to orbicular-obovate. Stamens usually borne in 2 rows. Carpels erect; style short or obsolete; stigma minute. Follicles spreading or recurved. Seeds often adherent in a body by means of the aril-fringe.

Type species, *Crossosoma californicum* Nutt.

Petals broadly obovate or orbicular-obovate; follicles many-seeded. 1. *C. californicum.*
Petals spatulate to oblong; follicles few-seeded.
  Follicle-body oblong-cylindric, wrinkled. 2. *C. Bigelovii.*
  Follicle-body ovoid, reticulate.
    Follicles stout-beaked, copiously glaucous; leaf-blades mucronulate or sometimes obtuse. 3. *C. glaucum.*
    Follicles minutely beaked, not glaucous; leaf-blades mostly acute. 4. *C. parviflorum.*

1. Crossosoma californicum Nutt. Jour. Acad. Phila. II. 1: 150. 1848.

Shrub or small tree, with a rough somewhat flaky bark; leaf-blades oblong, oblong-obovate, spatulate or linear-spatulate, 2.5–9 cm long, commonly mucronate, sessile, or nearly so; flowers long-pedicelled; hypanthium 4.5–5.5 mm. broad at maturity; sepals suborbicular, 8–12 mm. long; petals white, broadly obovate to oblong-obovate, 14–18 mm. long; follicles drooping, 15–32 mm. long, the bodies cylindric, wrinkled, each terminating in a curved or hooked beak; seeds about 3 mm. in diameter.

Type locality: Santa Catalina Island, California.
Distribution: Santa Catalina and San Clemente Islands, California, and Guadalupe Island, Lower California.
Illustration: Pacif. R. R. Rep. 4[4]: *pl. 1, f. 1.*

2. Crossosoma Bigelovii S. Wats. Proc. Am. Acad. 11: 122. 1876.

Shrub, with irregularly much-branched stems, often spinescent, the bark of the twigs light-gray or yellowish; leaf-blades spatulate, cuneate, obovate or elliptic, or ovate to oblong-lanceolate on the twigs, 0.5–1.5 cm. long, acute or mucronulate, commonly gradually narrowed to the base; flowers short-pedicelled; hypanthium 3–3.5 mm. wide at maturity; sepals suborbicular, 4.5–5.5 mm. long; petals white or purplish, oblong to spatulate, 9–14 mm. long; follicles 9–12 mm. long, the bodies oblong-cylindric, wrinkled, slender-stipitate, each terminating in a short oblique beak; seeds about 2 mm. in diameter.

Type locality: Near the mouth of Bill Williams River, Arizona.
Distribution: Southeastern California, Arizona, and Lower California.
Illustration: Pacif. R. R. Rep. 4[4]: *pl. 1*, excluding *f. 1* and dissections.

3. **Crossosoma glaucum** Small, sp. nov.

Shrub, with irregularly branched stems, less spines centthan *C. Bigelovii*, the bark of the twigs dark-gray; leaf-blades mainly oval or ovate, or sometimes obovate, mostly 0.5–1 cm. long or sometimes slightly larger, obtuse or mucronulate, glaucous, rather abruptly narrowed at the base; flowers short-pedicelled; hypanthium about 3 mm. wide at maturity; sepals suborbicular, 4–5 mm. long; petals white, spatulate, 9–11 mm. long; follicles 7–9 mm. long, the bodies ovoid, reticulate, stout-stipitate, each terminating in a stout beak; seeds about 2 mm. in diameter.

Type collected in the Hassayampa River Valley, Arizona, 1876, *E. Palmer 560*.
DISTRIBUTION: Known only from the type locality.

4. **Crossosoma parviflorum** Rob. & Fern. Proc. Am. Acad. **30**: 114. 1894.

Shrub, with many slender, usually elongate branches, the bark of the twigs gray; leaf-blades oblong to elliptic, 8–13 mm. long, mostly acute, pale-green on both sides, rather abruptly narrowed at the base; flowers short-pedicelled; hypanthium about 2 mm. wide at maturity; sepals broad or suborbicular, 1.5–2.5 mm. long; petals white, oblong or somewhat narrowed at the base, about 6 mm. long; follicles 6–7 mm. long, the bodies ovoid-reticulate, green, each terminating in a minute beak; seeds not seen.

TYPE LOCALITY: Grand Cañon of the Colorado River, Arizona.
DISTRIBUTION: Arizona and Sonora.

Family 16. CONNARACEAE

By Nathaniel Lord Britton

Trees, shrubs, or woody vines, with alternate estipulate odd-pinnate leaves, the leaflets entire-margined. Flowers small, usually perfect, nearly or quite regular, racemose or paniculate. Calyx 5-lobed or 5-parted, mostly persistent at the base of the fruit. Petals 5, usually distinct, mostly imbricated. Stamens perigynous or hypogynous, 10 or fewer; filaments filiform; anthers small, didymous. Disk none or very narrow. Ovary of 5 distinct hirsute carpels; styles slender or filiform; stigmas capitellate; ovules 2, orthotropous. Fruit a leathery or woody, 1-seeded, rarely 2-seeded follicle, ventrally dehiscent. Seed erect, usually arillate; cotyledons foliaceous; endosperm fleshy or none.

Calyx-segments imbricate.
- Calyx enlarged after flowering; capsule sessile. — 1. Rourea.
- Calyx not enlarged after flowering; capsule stipitate. — 2. Connarus.

Calyx little enlarged after flowering, its segments valvate; capsule sessile, tomentose. — 3. Cnestidium.

1. ROUREA Aubl. Pl. Guian. 1: 467. 1775.

Woody vines, shrubs, or small trees, with evergreen odd-pinnate leaves, the leaves rarely unifoliolate, the twigs often terminating in a stout hook or coil. Flowers small and numerous in axillary or terminal panicles. Calyx deeply 5-lobed, enlarged and persistent in fruit, the lobes imbricate. Petals 5, more or less longer than the calyx; stamens 10, the 5 alternate ones the longer; filaments filiform, cohering at the base; anthers didymous; carpels 5, usually 1 only maturing, the others imperfect. Follicle curved, sessile, 1-seeded. Seed erect, mostly longer than the aril, shining; endosperm none.

Type species, *Rourea frutescens* Aubl.

Leaflets coriaceous or subcoriaceous, 9 cm. long, or less; vines.
- Leaflets shining above; inflorescence glabrous. — 1. *R. glabra.*
- Leaflets dull on both sides; inflorescence sparingly appressed-pubescent, at least when young. — 2. *R. paucifoliata.*

Leaflets chartaceous, 1–2.3 cm. long; small tree. — 3. *R. suerrensis.*

1. Rourea glabra H.B.K. Nov. Gen. 7: 41. 1824.

Robergia glabra Spreng. Syst. 4: Cur. Post. 188. 1827.
Rourea oblongifolia H. & A. Bot. Beech. Voy. 283. 1836.
Connarus? glabra DC. Prodr. 2: 85. 1825.

A vine, with glabrous terete branches. Leaves long-petioled, glabrous; leaflets 3 or 5, oblong to ovate-elliptic, coriaceous, 3–12 cm. long, shining above, dull beneath, acuminate at the apex, rounded at the base, the stout petiolules 2–5 mm. long; panicles usually numerous, 6–9 cm. long, much shorter than the leaves; bracts very small, ovate to lanceolate, sometimes slightly villous; pedicels filiform, 2–8 mm. long; calyx about 3 mm. long, its lobes ovate to oval, acutish or obtuse, ciliolate; petals white, obovate, about one half longer than the calyx; stamens a little shorter than the petals, the anthers cordate; carpels villous; styles a little shorter than the stamens; follicle obliquely oblong, slightly curved, 1–1.7 cm. long, 4–6 mm. in diameter, 2–4 times as long as the fruiting calyx; seed dark-brown, the aril one third to one fourth its length.

Type locality: Banks of the Orinoco River near Caycara.
Distribution: Cuba; Santo Domingo; Porto Rico; St. Lucia; Grenada; Tamaulipas and Tepic to Panama; also in Colombia and Venezuela.

2. **Rourea paucifoliata** Planch. Linnaea **23**: 415. 1850.

Rourea oblongifolia floribunda Planch. Linnaea **23**: 415. 1850.

A vine, several meters long, the young twigs finely appressed-puberulent or glabrate. Leaves glabrous, the petioles rather slender; leaflets 3–9, rarely only 1, ovate to oblong-lanceolate, subcoriaceous, dull on both sides, 3–8 cm. long, long-acuminate at the apex, rounded or narrowed at the base, the petiolules 3–4 mm. long; panicles mostly solitary in the upper axils, sometimes clustered, 6–12 cm. long, equaling or longer than the leaves, sparingly appressed-pubescent; bracts lanceolate to subulate, ciliate, 1.2 mm. long; calyx about 3 mm. long, its lobes oval, ciliate, becoming broadly ovate in fruit; petals narrowly obovate, one half longer than the calyx; carpels villous; styles much shorter than the stamens; follicle obliquely oblong, 1.5 cm. long, about 6 mm. in diameter, 3–4 times as long as the calyx; seed oblong, 8–10 mm. long, about three times as long as the aril.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Jamaica.

3. **Rourea suerrensis** Donn.-Smith, Bot. Gaz. **23**: 5. 1897.

"A small tree." Petioles rather stout, 10 cm. long or less; leaflets 5 or 3, chartaceous, elliptic to obovate-oblong, the larger ones 1.5–2.3 dm. long, 1 dm. wide or less, deep-green and faintly shining above, paler beneath, acuminate at the apex, narrowed at the base, the stout petiolules 3 or 4 mm. long, the veins elevated on the lower surface, about 5 on each side of the midvein; panicles clustered in the upper axils, about as long as the petioles, the rachis and pedicels appressed-puberulent; pedicels 5 mm. long or less; calyx about 3 mm. long, its lobes broadly ovate, acutish; petals oblong, obtuse, about 6 mm. long; shorter stamens about as long as the calyx-lobes; carpels pilose, much shorter than the styles; follicles narrowly oblong, curved, about 13 mm. long and 5–6 mm. in diameter. aril yellow, about one fourth as long as the seed.

TYPE LOCALITY: Suerre, Llanos de Santa Clara, 300 m. alt., Costa Rica.
DISTRIBUTION: Known only from the type locality.

2. **CONNARUS** L. Sp. Pl. 645. 1753.

Trees, shrubs, or woody vines, with evergreen odd-pinnate leaves, the leaflets chartaceous or coriaceous. Flowers small, mostly in axillary panicles. Calyx 5-parted, the segments imbricate, not enlarged after flowering, persistent or deciduous. Petals 5, longer than the calyx. Stamens 10, the filaments filiform, connate at the base, the alternate ones longer and shorter; anthers didymous. Disc none, or annular. Carpels 5, usually only 1 maturing. Follicle stipitate, obliquely obovoid or oblong, woody or coriaceous, 1-seeded. Seed erect, longer than the aril; endosperm none.

Type species, *Connarus macrocarpus* L.

Follicle distinctly many-striate, its stipe very short. — 1. *C. Lamberti.*
Follicle smooth, or indistinctly striate, its stipe 5–7 mm. long.
  Leaflets leathery, densely and strongly reticulate-veined beneath. — 2. *C. reticulatus.*
  Leaflets chartaceous to membranous, not densely reticulate-veined.
    Young twigs and inflorescence densely red-tomentose or velvety.
      Follicles 3–3.5 cm. long, veiny; leaflets 24 cm. long or less. — 3. *C. grandifolius.*
      Follicles about 1.5 cm. long, smooth or nearly so; leaflets 13 cm. long or less. — 4. *C. panamensis.*
    Young twigs and panicles appressed-puberulent; follicles about 2 cm. long, faintly striate; leaflets 5–10 cm. long. — 5. *C. Turczaninowii.*

1. **Connarus Lamberti** (DC.) Britton.

Omphalobium Lamberti DC. Prodr. **2**: 85. 1825.
Connarus guianensis Lamb.; DC. Prodr. **2**: 85, as synonym. 1825.
Connarus Pottsii S. Wats. Proc. Am. Acad. **21**: 463. 1886.

Older twigs and mature leaves glabrous, the young twigs puberulent. Petioles stout, 5–8 cm. long; leaflets 3, oblong-elliptic to ovate-elliptic, chartaceous, 10–15 cm. long, 6–8 cm. wide, acuminate at the apex, rounded or narrowed at the base, the primary veins prominent on the under side, about 9 on each side of the stout midvein, the petiolules 2–3

mm. long ; inflorescence shorter than the leaves, the rachis puberulent ; pedicels very short ; calyx puberulent, about 1.5 mm. long, its lobes oblong-lanceolate ; petals oblong, twice as long as the calyx ; longer stamens about as long as the calyx ; follicle obliquely obovoid, strongly ridged on the curved back, glabrous when mature, about 1.5 cm. long, 1.2 cm. wide and 1 cm. thick, many-striate, the stipe not longer than the calyx.

TYPE LOCALITY : Interior of Guiana.
DISTRIBUTION : St. Vincent (according to Grisebach) ; Guatemala ; also in Venezuela, Trinidad, and Guiana.

2. **Connarus reticulatus** Griseb. Cat. Pl. Cuba 84. 1866.

Young twigs puberulent, the older ones glabrous ; petioles 3–4 cm. long, thickened at the base ; leaflets 3, ovate-oblong to elliptic, leathery, smooth and shining above, strongly and densely reticulate-veined beneath, 4–8 cm. long, 2–3 cm. wide, acuminate at the apex, rounded at the base, the stout petiolules 2–3 mm. long ; panicles mostly terminal, peduncled, reddish-tomentose ; flowers pedicelled ; calyx tomentose, its segments lanceolate, obtusish ; petals oblong-lanceolate, about 6 mm. long, twice as long as the calyx ; follicles obliquely obovoid, 2.5 cm. long, 1.5 cm. wide, about 1 cm. thick, becoming glabrous, the apex incurved, acute, the stipe 3–4 mm. long.

TYPE LOCALITY : Eastern Cuba.
DISTRIBUTION : Known only from the type locality.

3. **Connarus grandifolius** Planch. Linnaea **23** : 432. 1850.

Young twigs densely red-tomentose, terete. Petioles stout, red-tomentose, 3–8 cm. long ; leaflets 3 or 5, thin-coriaceous, oblong to elliptic or narrowly obovate, smooth on both sides, or rufous-puberulent on the veins beneath when young, obtuse or short-acuminate at the apex, obtuse at the base, 12–24 cm. long, 6–10 cm. wide, the veins sunken in the upper surface, prominent beneath, coarsely reticulate ; panicles axillary, densely red-tomentose, many-flowered, shorter than the leaves ; flowers sessile ; calyx 3 mm. long, deeply cleft, red-tomentose, its lobes lanceolate, acute ; petals linear-oblong, somewhat longer than the calyx ; longer stamens 3 mm. long ; follicles obliquely obovoid, rufous-tomentose, becoming glabrous, finely veined, 3–3.5 cm. long, 2 cm. wide, 1.5 cm. thick, the incurved beak short, acute, the stipe 5–7 mm. long ; seed oblong, 2 cm. long.

TYPE LOCALITY : Dominica (erroneously said to be from Santo Domingo in Index Kewensis).
DISTRIBUTION : Guadeloupe, Dominica, and Martinique.

4. **Connarus panamensis** Griseb. Bonplandia **6** : 6. 1858.

A climbing vine with reddish-velvety twigs. Leaves trifoliolate ; petioles stout, about 6 cm. long ; leaflets elliptic to oblong, 10–13 cm. long, 4–8 cm. wide, short-acuminate at the apex, obtuse or subcordate at the base, rather thin, but firm in texture, dull, glabrous above, puberulent along the prominent midvein beneath, the primary veins about 6 on each side of the midvein, the stout petiolules about 5 mm. long ; flowers sessile, in velvety panicled spikes ; petals oblong, twice as long as the velvety calyx ; stamens shorter than the petals ; follicles obliquely obovate, saffron-colored, minutely apiculate on one side above the middle, velutinous when young, smooth or nearly so when mature, about 1.5 cm. long, 1 cm. wide and 8 mm. thick, the stout stipe about 5 mm. long ; seeds black, shining, the aril yellow.

TYPE LOCALITY : Panama.
DISTRIBUTION : Known only from the type locality.

5. **Connarus Turczaninowii** Triana & Planch. Ann. Sci. Nat. V. **16** : 364. 1872.

Connarus panamensis Turcz. Bull. Soc. Nat. Mosc. **32** : 277. 1859. Not *C. panamensis* Griseb. 1858.

Young twigs and leaves appressed-puberulent ; mature foliage glabrous. Petioles 4–6 cm. long ; leaflets 5 or 3, oblong to elliptic, chartaceous, 5–10 cm. long ; 3–5 cm. wide, acuminate at the apex, rounded or obtuse at the base ; the thickened petiolules 4 or 5 mm. long,

the primary veins somewhat elevated on the under side, 5–7 on each side of the midvein; flowers very numerous, sessile, in simple or panicled appressed-puberulent spikes often longer than the leaves; calyx about 2.5 mm. long, appressed-puberulent, its lobes oblong, obtusish; petals oblong-spatulate, about 4 mm. long; follicle obliquely obovate, glabrous when mature, 2 cm. long, 1.3 cm. wide, nearly 1 cm. thick, the inner margin nearly straight, with a minute tip at the end, the stipe 5 mm. long; seed 1 cm. long.

TYPE LOCALITY: Chagres, Panama.
DISTRIBUTION: Panama.

3. **CNESTIDIUM** Planch. Linnaea **23**: 439. 1850.

Trees or shrubs, with odd-pinnate leaves, the leaflets very short-petiolulate, and many-flowered, velvety-pubescent, axillary and terminal panicles, the small flowers bracteolate. Calyx-tube hemispheric, the limb 5-cleft, the lobes valvate in bud, spreading and little enlarged in fruit; petals 5, oblong, longer than the calyx, glabrous; stamens 10; filaments distinct, the alternate ones longer and shorter; carpels 5, sessile; styles filiform, glabrous; stigmas obtuse. Follicle solitary, oblong, sessile, curved, velvety; seed oblong, shining, with a fleshy cupuliform aril at its base.

Type species, *Cnestidium rufescens* Planch.

Cnestidium rufescens Planch. Linnaea **23**: 440. 1850.

Rourea frutescens Griseb. Fl. Br. W. Ind. 229. 1860. Not *R. frutescens* Aubl. 1775.
Rourea hondurensis Donn.-Smith, Bot. Gaz. **40**: 2. 1905.

A half-climbing shrub, 3 m. high or more, the young twigs and leaf-rachis velvety-pubescent. Petioles 3–7 cm. long; leaflets 5–9, ovate-oblong to oblong-obovate, subcoriaceous, 3–8 cm. long, 1.5–5 cm. wide, glabrous above when old, velvety-pubescent beneath, obtusish to short-acuminate at the apex, rounded, subcordate or narrowed at the base, the veins elevated on the under side, 6–8 on each side of the midvein, the petiolules only about 2 mm. long; panicles axillary and terminal, as long as the leaves or shorter, the rachis densely velvety-pubescent; calyx 2.5–3 mm. long, velvety-pubescent, deeply cleft, its lobes oblong, obtusish; petals oblong, slightly unequal, a little longer than the calyx; longer stamens about equaling the calyx; follicle oblong, strongly curved, 1.5 cm. long, about 9 mm. thick, densely brown-tomentose; seed obliquely oval, shining, twice as long as the aril.

TYPE LOCALITY: Panama.
DISTRIBUTION: Southern Mexico to Honduras and Panama; Cuba.

Family 17. CALYCANTHACEAE

By Charles Louis Pollard

Shrubs, of variable height, with aromatic bark. Leaves opposite, estipulate, the blades entire. Flowers rather large, solitary, terminal or axillary, commonly fragrant. Sepals and petals few or numerous, imbricated in several or many series, inserted on the edge of the hollow cup-shaped receptacle. Androecium composed of few or numerous stamens, borne on the receptacle, the inner ones reduced to staminodia. Gynoecium composed of many separate carpels, inserted within the receptacle. Ovary 1-celled, with 1 or 2 anatropous ovules; style filiform, with a terminal stigma. Fruit a pseudocarp, consisting of the obovoid or oblong somewhat accrescent receptacle bearing the adnate bases of the floral leaves and enclosing numerous achenes with a tough, shining exocarp. Seed solitary, erect, exendospermous, with membranous testa; embryo with convolute cotyledons.

1. CALYCANTHUS L. Syst. ed. 10. 1066. 1759.

Basteria Mill. (Fig. Pl. **40**: *pl. 60;* hyponym. 1755) Dict. ed. 8. 1768.
Beureria Ehret (Pl. & Pap. Rar. *pl. 13;* hyponym. 1755); Kuntze, Rev. Gen. 5. 1891.
Butneria Duham. (Arb. & Arbust. **1**: 113; hyponym. 1755); Kearney, Bull. Torrey Club **21**: 173. 1894.

Shrubs, with opposite leaves and branches. Leaves glabrate above, often scabrous when mature, frequently glaucous or pubescent beneath. Flowers reddish-purple, brownish or yellowish, usually with the fragrance of strawberries. Sepals and petals imbricated in several series. Stamens in few or numerous rows, only the outer fertile. Pseudocarp capsule-like, nodding; other characters as in the family.

Type species, *Calycanthus floridus* L.

Anthers oblong; pseudocarp contracted at the mouth; Atlantic species.	
Leaf-blades pubescent or tomentose beneath.	
Petals 1.5–2 cm. long; leaf-blades acute or acuminate at base.	1. *C. floridus.*
Petals 2–3 cm. long; leaf-blades obtuse or subcordate at base.	2. *C. Mohrii.*
Leaf-blades glabrous or glaucous beneath when mature.	3. *C. fertilis.*
Anthers linear; pseudocarp open at the mouth; Pacific species.	4. *C. occidentalis.*

1. Calycanthus floridus L. Syst. ed. 10. 1066. 1759.

Calycanthus sterilis Walt. Fl. Car. 151. 1788.
Beurera florida Kuntze, Rev. Gen. 5. 1891.
Butneria florida Kearney, Bull. Torrey Club **21**: 175. 1894.

An aromatic branching shrub, 0.6–3 m. high, with pubescent twigs and branchlets; leaf-blades oval, elliptic, or ovate-elliptic, 5–12 cm. long, acute or rarely obtuse at apex, acute or acuminate at base, pubescent on both surfaces when young, becoming at maturity dark-green and scabrous above, soft-pubescent or tomentose beneath; flowers dull-purple, very fragrant; sepals and petals pubescent, linear or oblong-linear, 1.5–2 cm. long; pseudocarp obovoid or oblong, somewhat tomentose; seed obovoid, slightly hirsute, about 10 mm. long.

Type locality: South Carolina.
Distribution: Southern Virginia to Florida, Alabama, and Mississippi, chiefly on hillsides and along streams.
Illustrations: Bot. Mag. *pl. 503;* Britt. & Brown, Ill. Fl. *f. 1650.*

2. **Calycanthus Mohrii** Small.

Butneria Mohrii Small, Fl. SE. U. S. 528. 1903.

A branching shrub, 1–2 m. high, with pubescent twigs and branchlets; leaf-blades ovate or oblong-ovate, 5–20 cm. long, acute or acuminate at apex, rounded or subcordate at base, pubescent on both surfaces when young, becoming at maturity bright-green and somewhat scabrous above, tomentose beneath; flowers purple, fragrant, on short peduncles; sepals and petals pubescent, linear or linear-oblanceolate, 2–3 cm. long, often green-tipped; mature pseudocarp unknown.

TYPE LOCALITY: Lookout Mountain, Alabama.
DISTRIBUTION: Mountains, southern Tennessee and northern Alabama.

3. **Calycanthus fertilis** Walt. Fl. Car. 151. 1788.

Calycanthus nanus Loisel. Nouv. Duham. 1: 219. *pl. 48.* 1803.
Calycanthus ferax Michx. Fl. Bor. Am. 1: 305. 1803.
Calycanthus glaucus Willd. Enum. 559. 1809.
Calycanthus laevigatus Willd. Enum. 559. 1809.
Calycanthus inodorus Ell. Bot. S. C. & Ga. 1: 576. 1821.
Beurera fertilis Kuntze, Rev. Gen. 5. 1891.
Beurera ferax Kuntze, Rev. Gen. 5. 1891.
Butneria fertilis Kearney, Bull. Torrey Club 21: 175. 1894.
Butneria nana Small, Fl. SE. U. S. 528. 1903.

A branching, aromatic shrub, 1–3 m. high, glabrous or with little pubescence; leaf-blades rather thin or even membranaceous, oblong-lanceolate, ovate or elliptic, 6–20 cm. long, acute or acuminate at apex, rounded or subacute at base, bright-green and scabrescent above, paler or glaucous beneath; flowers greenish-purple, often inodorous; sepals and petals pubescent, linear or linear-oblanceolate, 0.5–3 cm. long: pseudocarp obovoid or oblong, nearly glabrous; seed oblong, 10–14 mm. long, obscurely flattened, slightly pubescent.

TYPE LOCALITY: South Carolina.
DISTRIBUTION: Pennsylvania to North Carolina, eastern Kentucky and Tennessee and northern Alabama, in mountainous regions.
ILLUSTRATIONS: Andr. Rep. 8: *pl. 539;* Bot. Reg. 5: *pl. 404;* Britt. & Brown, Ill. Fl. *f. 1651.*

4. **Calycanthus occidentalis** H. & A. Bot. Beech. Voy. 340. 1838.

Butneria occidentalis Greene, Erythea 1: 207. 1893.

A branching shrub, 1–3 m. high; leaf-blades thick, oblong-lanceolate, ovate or broadly ovate, 7–20 cm. long, acute at the apex, rounded or subcordate at the base, glabrous on both surfaces and strongly scabrous above when mature; flowers brownish-purple, the upper portion often fading tawny-brown when drying; sepals and petals linear-spatulate, 1–3 cm. long; pseudocarp campanulate or ovoid-campanulate.

TYPE LOCALITY: California.
DISTRIBUTION: California, in the Coast Range.
ILLUSTRATIONS: H. & A. Bot. Beech. Voy. *pl. 84;* Bot. Mag. *pl. 4808;* Fl. Serres *pl. 1113.*

Family 18. ROSACEAE

By Per Axel Rydberg

Herbs, shrubs, or trees, of various habit. Leaves usually alternate, simple, often pinnately or digitately dissected, or compound; stipules usually present, sometimes conspicuous. Flowers usually perfect, rarely dioecious or monoecious, solitary or in spikes, racemes, corymbs, panicles or irregular cymes. Hypanthium more or less developed, from flat or saucer-shaped to deeply campanulate, urn-shaped or almost salver-shaped, often margined with a more or less developed glandular annular disk, which bears the stamens. Sepals normally 5, rarely 4 or 6–9, often subtended with a set of as many similar organs, usually called bractlets. Petals as many as the sepals or wanting; androecium of 1–many stamens; most commonly these are 20 in three series; one series of 5, opposite the sepals, another also of 5, opposite the petals, and a series of 10, two placed outside each of the latter; sometimes one or more of these series is lacking or reduced or increased in number, or all the stamens arranged in a single series on the more developed disk; filaments distinct, or rarely slightly united at the base; anthers 2-celled. Gynoecium of 1–many, usually wholly distinct pistils; ovaries 1-celled; styles terminal, lateral or basal; ovules 1–few. Fruit of achenes, follicles or drupelets, sometimes raised on an accrescent receptacle. Endosperm usually wanting or scant, but more copious in *Opulaster*, the tribe *Sorbarieae*, etc.; embryo usually straight with plane cotyledons (except in *Osmaronia*).

A. Fruit consisting of 1–5 dehiscent follicles.
  Seeds not winged.
    Carpels alternate with the sepals, or less in number; stipules none or deciduous.
      Carpels 1–5, if more than one more or less united below; seeds shining, pear-shaped, with a bony coat; endosperm present. Tribe 1. NEILLIEAE.
      Carpels usually 5, distinct; seeds dull, linear or linear-lanceolate, with a thin coat; endosperm lacking. Tribe 2. SPIRAEEAE.
    Carpels opposite to the sepals; stipules present, persistent. Tribe 3. SORBARIEAE.
  Seeds winged; carpels in ours more or less united; stipules deciduous. Tribe 4. QUILLAJEAE.
B. Fruit consisting of indehiscent achenes or drupelets.
  I. Carpels not enclosed in a fleshy hypanthium.
    a. Fruits consisting of dry achenes.
      1. Ovules 2, one above the other; achenes usually 1-seeded and more or less flattened, arranged in a single circle.
        Hypanthium hemispheric; anthers cordate at the base, more or less didymous; filaments filiform or subulate; shrubs with simple leaves. Tribe 5. HOLODISCEAE.
        Hypanthium flat or nearly so; anthers nearly globose, acute at the base; filaments subclavate; perennial herbs with pinnately dissected leaves. Tribe 6. ULMARIEAE.
      2. Ovules and seeds solitary; achenes usually turgid and if many spirally arranged.
        a. Seeds inserted at the distal end of the ovary, *i. e.*, at the point where the style arises, pendulous or in genera with basal styles ascending; radicle superior.
          Disc at the mouth of the hypanthium annular or obsolete; leaves and branches alternate.
            Style articulated to the ovary; hypanthium from campanulate to almost flat, neither contracted at the throat nor closely investing the achenes; flowers cymose or solitary. Tribe 7. POTENTILLEAE. p.260

Style not articulated to the ovary; hypanthium more or less urn-shaped, contracted at the mouth.
Styles nearly basal; inflorescence cymose; hypanthium loosely investing the achenes. Tribe 8. ALCHEMILLEAE.
Styles terminal; inflorescence spicate, racemose, or paniculate; hypanthium indurate, closely investing the achenes in fruit.
Styles perfectly terminal and straight, or slightly bent to one side; herbs with spicate or racemose inflorescence. Tribe 9. SANGUISORBEAE.
Styles inserted at one side of the cushion-covered top of the ovary, doubly bent; shrubs with paniculate inflorescence. Tribe 10. ADENOSTOMATEAE.
Disc at the mouth of the hypanthium produced into a cylindric tube, separating the stamens from the pistils; shrubs with opposite leaves and branches. Tribe 11. COLEOGYNEAE.
β. Seeds inserted at the proximal end of the ovary, *i. e.*, perfectly basal; radicle inferior.
Styles wholly deciduous. Tribe 12. COLURIEAE.
Styles partly or wholly persistent.
Hypanthium hemispheric, campanulate or turbinate, persistent. Tribe 13. DRYADEAE.
Hypanthium salver-shaped, the limb deciduous, the tube persistent and closely investing the fruit; shrubs. Tribe 14. CERCOCARPEAE.
b. Fruits of more or less fleshy drupelets; ovules 2, collateral.
Stamens few or many, inserted on the margin of the flat or saucer-shaped hypanthium; cotyledons flat.
Pistils at least as many as the sepals, usually numerous; petals present at least in the staminiferous flowers. Tribe 15. RUBEAE.
Pistils 2–4, fewer than the sepals; petals in ours none. Tribe 16. KERRIEAE.
Stamens 15, the 5 antisepalous ones inserted in the tube of the campanulate hypanthium; cotyledons convolute. Tribe 17. OSMARONIEAE.
II. Carpels enclosed in the hypanthium, which becomes fleshy in fruit. Tribe 18. ROSEAE.

Tribe 1. **NEILLIEAE.** Shrubs, with alternate, toothed, and usually more or less lobed leaves, and deciduous stipules. Inflorescence racemose or corymbose, or rarely paniculate. Hypanthium from hemispheric to deeply campanulate (in *Neillia*). Disk more or less developed, bearing many stamens; anthers didymous. Pistils 1–5; if more than one, more or less united at the base; ovules 1–several. Seeds pear-shaped, with a bony shining coat.

1. OPULASTER Medic. Pfl. Anat. 109. 1799.

Spiraea § *Physocarpos* Camb. Ann. Sci. Nat. 1: 239. 1824.
Icotorus Raf. Bull. Bot. Seringe 216. 1830.
Epicostorus Raf. Atl. Jour. 1: 144. 1832.
Physocarpa Raf. New Fl. 3: 73. 1838. Not *Physocarpon* Necker, 1790.
Physocarpus Maxim. Acta Hort. Petrop. 6: 219. 1879.

Shrubs with exfoliating bark. Flowers in terminal corymbs. Leaves alternate, 3–5-ribbed, more or less lobed and usually with more or less stellate hairs. Hypanthium hemispheric or nearly so. Sepals 5, persistent, stellate-tomentulose at least within. Petals 5, white or rarely pinkish, spreading. Stamens 20–40, on a disk clothing the mouth of the hypanthium; filaments long, slender, filiform; anthers didymous. Pistils 1–5, more or less united at the base; styles filiform, terminal; stigmas capitate; ovules 2–4, the uppermost pendulous. Follicles more or less inflated, opening along both sutures; seeds 2–4, most commonly 2, obliquely pear-shaped, shining with a bony coat; embryo straight; endosperm copious.

Type species, *Spiraea opulifolia* L.

Carpels 3–5, united only at the base, turgid.
Mature carpels glabrous, ovate, usually 5.
Caruncle of the seeds lateral, about one-third as long as the seed; follicles usually twice as long as the sepals; leaves of the sterile shoots usually longer than broad, 3-lobed. 1. *O. opulifolius*.
Caruncle short, almost terminal; follicles not more than half longer than the sepals; leaves of the sterile shoots scarcely longer than broad.

Carpels 8–10 mm. long, rather gradually acute; leaves of the sterile shoots often 5-lobed. 2. *O. capitatus.*
Carpels 3–6 mm. long, abruptly acute; leaves of the sterile shoots 3-lobed. 3. *O. australis.*
Mature carpels stellate, short-ellipsoid, abruptly acute, usually 3 or 4; caruncle short.
Branches glabrous; leaf-blades of the sterile shoots cordate or rounded-ovate.
Leaf-blades deeply lobed, as broad as long, cordate at the base; western species. 4. *O. cordatus.*
Leaf-blades shallowly round-lobed, not cordate at the base, usually longer than broad; eastern species. 5. *O. intermedius.*
Branches more or less hairy or stellate, especially when young.
Leaf-blades of the sterile shoots ovate in outline, more or less acuminate, sparingly pubescent. 6. *O. alabamensis.*
Leaf-blades of the sterile shoots round-ovate, merely acute, densely stellate. 7. *O. stellatus.*
Carpels 2, united half their length, or only 1.
Carpels usually 2; stamens similar or nearly so.
Mature carpels more or less turgid; styles more or less spreading.
Bracts obovate or spatulate, often foliaceous and more or less persistent. 8. *O. bracteatus.*
Bracts linear or linear-oblanceolate, membranous and caducous.
Pedicels and hypanthium almost glabrous; sepals stellate only on the inner surface and near the margin; shrub 1 m. high or more. 9. *O. glabratus.*
Pedicels, hypanthium, and calyx densely stellate; shrub 0.5 m. high or less.
Leaves green on both sides, almost glabrous. 10. *O. monogynus.*
Leaves paler and densely stellate beneath. 11. *O. Hapemanii.*
Mature carpels flattened and decidedly keeled; styles erect. 12. *O. malvaceus.*
Carpels usually solitary; alternate filaments longer and with more dilated base; leaves small, finely stellate. 13. *O. alternans.*

1. **Opulaster opulifolius** (L.) Kuntze, Rev. Gen. 949. 1891.

Spiraea opulifolia L. Sp. Pl. 489. 1753.
Opulaster bullatus Medic. Pfl. Anat. 109. 1799.
Physocarpa riparia Raf. New Fl. **3**: 73. 1838.
Physocarpa opulifolia Raf. New Fl. **3**: 73, in part. 1838.
Neillia opulifolia Brewer & Wats. Bot. Calif. **1**: 171. 1876.
Physocarpus opulifolia Maxim. Acta Hort. Petrop. **6**: 220. 1879.
Physocarpus michiganensis Daniels, Univ. Missouri Stud. Sci. **1**: 291. 1907.

A shrub, 1–3 m. high, much branched; the old bark peeling off in layers; branches glabrous or nearly so; leaf-blades of the flowering branches usually ovate, varying from oblong-ovate to almost orbicular, glabrous except sometimes the veins and their axils, 2–7 cm. long, 1.5–6 cm. wide, usually shallowly or indistinctly 3-lobed, but sometimes resembling those of the sterile shoots, acute, rounded or subcordate at the base, doubly crenate, acute, obtuse or rounded at the apex; leaf-blades of the sterile shoots usually larger and more deeply lobed, 6–10 cm. long, usually subcordate at the base, acute or somewhat acuminate at the apex; corymb open; bracts spatulate or oblanceolate, early caducous; pedicels 1–2 cm., in fruit 2–3 cm. long, glabrous or stellate-pubescent; hypanthium about 4 mm. wide, stellate or glabrate; sepals ovate, acute, about 3 mm. long, sparingly stellate or glabrate without, densely white stellate-tomentose within; petals orbicular or broadly obovate, 3–4 mm. long, white or pinkish; follicles usually 5, in age perfectly glabrous, 8–10 mm. long, ovate, rather long-acuminate; seed obliquely pear-shaped, nearly 2 mm. long; caruncle long, about one-third as long as the seed.

TYPE LOCALITY: Virginia.
DISTRIBUTION: Rocky river banks, from Quebec to Virginia, Tennessee, and Michigan.
ILLUSTRATIONS: Ann. Sci. Nat. 1: *pl. 17*; Nouv. Duham. *pl. 14*; Loud. Arb. *pl. 427*, *428*; Britt. & Brown, Ill. Fl. *f. 1882*.

2. **Opulaster capitatus** (Pursh) Kuntze, Rev. Gen. **2**: 949. 1891.

Spiraea capitata Pursh, Fl. Am. Sept. 342. 1814.
Spiraea opulifolia tomentella Seringe, in DC. Prodr. **2**: 542. 1825.
Spiraea opulifolia β Hook. Fl. Bor. Am. **1**: 171. 1832.
Physocarpa tomentosa Raf. New Fl. **3**: 74. 1838.
Spiraea opulifolia mollis T. & G. Fl. N. Am. **1**: 414. 1840.
Neillia opulifolia mollis Brewer & Wats. Bot. Calif. **1**: 171. 1876.
Neillia capitata Greene, Pittonia **2**: 28. 1889.

Physocarpus capitatus Kuntze, Rev. Gen. 219. 1891.
Opulaster opulifolius capitatus Jepson, Fl. W. Middle Calif. 276. 1901.
Physocarpa opulifolia or *glabra* Raf. New Fl. **3**: 73, in part. 1838.*
Spiraea ribifolia Nutt.; T. & G. Fl. N. Am. 1: 414, as a synonym. 1840.
Neillia opulifolia multiflora Durand, Jour. Acad. Phila. II. **3**: 87. 1855.
Neillia opulifolia Brewer & Wats. Bot. Calif. **1**: 171. 1876.

A shrub, with surculose branches, interlacing among willows and laurels, sometimes even 7 m. long; branches glabrous or slightly stellate; petioles 1–3 cm. long; leaf-blades of the flowering branches broadly rounded-ovate or pentagonal in outline, distinctly 3–5-lobed with incised or doubly serrate lobes, truncate, rounded or cordate at the base, acute or obtuse at the apex, sparingly pubescent or glabrous above, more densely stellate-pubescent or sometimes glabrous beneath, 3–6 cm. long and usually fully as broad; leaf-blades of the sterile shoots 6–10 cm. long, more deeply lobed, more deeply incised and sometimes with longer acuminate terminal lobe; inflorescence dense; bracts linear-lanceolate, very early caducous; pedicels 1–2 cm. long, in fruit 2–3 cm. long, rather densely stellate; hypanthium 4–5 mm. wide, equally densely stellate on both sides; sepals ovate, acute, stellate; petals orbicular, about 4 mm. long; carpels usually 5, perfectly glabrous when mature, 8–10 mm. long, ovate, rather long-acuminate; seeds fully 2 mm. long, obliquely pear-shaped; caruncle short and nearly terminal.

TYPE LOCALITY: Northwest coast [of America].
DISTRIBUTION: Among willows and laurels, from southern British Columbia to central California and Idaho.

3. **Opulaster australis** Rydberg, sp. nov.

?*Spiraea caroliniana* Marsh. Arbust. 146; hyponym. 1785.

A shrub, 1–2 m. high, branches light-brown, angled, glabrous; petioles 1–2 cm. long; leaf-blades broadly ovate in outline, glabrous, rounded or truncate at the base, acute at the apex, deeply 3-lobed, double-toothed with ovate teeth, dark-green above, paler beneath, 4–8 cm. long, 3.5–7 cm. wide; inflorescence dense; pedicels about 1 cm. long, in fruit 1.5–2 cm. long, densely stellate; bracts linear, caducous; hypanthium 3–4 mm. wide, stellate; sepals 2.5–3 mm. long, ovate, acute, stellate on both sides; petals almost orbicular, 4 mm. long; carpels usually 5, glabrous, 3–6 mm. long, abruptly acute; seeds rounded-pear-shaped; caruncle very short and nearly terminal.

Type collected on the summit of Stone Mountain, North Carolina, in 1891, *Small & Heller 256*.
DISTRIBUTION: Mountains, from Virginia to South Carolina.

4. **Opulaster cordatus** Rydberg, sp. nov.

Opulaster capitatus Holz. Contr. U. S. Nat. Herb. **3**: 221, in part. 1895.

A tall shrub; branches brown, glabrous and shining; petioles 2–3 cm. long; leaf-blades rounded-cordate to somewhat reniform in outline, 4–10 cm. long and about as broad, 3–5-lobed with rounded or acute lobes, serrate with rounded-ovate teeth, glabrous on both sides or with scattered hairs beneath, usually more or less cordate at the base, acute at the apex; inflorescence dense; pedicels about 2 cm. long, densely stellate; hypanthium 5 mm. wide, densely stellate; sepals ovate, acute, densely stellate, 3–4 mm. long; carpels 3–5, densely stellate, 8–9 mm. long, abruptly acute.

Type collected in a deep cañon, Farmington Landing, Lake Coeur d'Alene, Idaho, in 1892, *Sandberg, MacDougal & Heller 575*, in part.
DISTRIBUTION: Western Idaho to northern California.

5. **Opulaster intermedius** Rydb. in Britton, Man. 492. 1901.

?*Spiraea opulifolia tomentella* Seringe, in DC. Prodr. **2**: 542. 1825.
Opulaster Ramaleyi A. Nelson, Bot. Gaz. **34**: 367. 1902.
?*Opulaster opulifolius tomentellus* C. K. Schneid. Handb. Laubh. 1: 442. 1904.
Physocarpus intermedius C. K. Schneid. Handb. Laubh. 1: 807. 1906.
Physocarpus missouriensis Daniels, Univ. Missouri Stud. Sci. 1: 291. 1907.

A shrub, 1–1.5 dm. high; branches glabrous or nearly so; petioles 1–2 cm. long; leaf-blades ovate to orbicular in outline, usually shallowly 3-lobed, 2–6 cm. long, doubly crenate,

* This and the following synonyms represent the more glabrous form.

obtuse or acute at the apex, obtuse, truncate or subcordate at the base, glabrous or nearly so above, usually sparingly hairy beneath; inflorescence dense, but the flowers less numerous than in the preceding; bracts linear-oblanceolate, caducous; pedicels 1–1.5 cm. long, stellate-pubescent; hypanthium 3–4 mm. wide, stellate; sepals ovate, acute, densely stellate on both sides; petals broadly obovate, about 4 mm. long; carpels usually 3 or 4, permanently stellate, inflated, united at the base, rounded-ellipsoid, abruptly acuminate, 7–8 mm. long; seed pear-shaped, only slightly oblique, a little less than 2 mm. long; caruncle small, near the end.

TYPE LOCALITY: Not given in the original publication, but the type was collected on French Creek, 10 miles below Custer, Black Hills, South Dakota, *P. A. Rydberg*.

DISTRIBUTION: Creek banks and hillsides from western New York to Missouri, Colorado, and the Black Hills of South Dakota.

6. **Opulaster alabamensis** Rydberg, sp. nov.

Opulaster intermedius Small, Fl. SE. U. S. 513, in part. 1903.

A shrub, 1–2 m. high; branches more or less stellate when young; petioles 1–2 cm. long; leaf-blades of the flowering branches rounded-ovate, 2–5 cm. long, often indistinctly 3-lobed, doubly crenate, obtuse or acute at the apex, acute to rounded at the base, sparingly hairy or glabrous above, more stellate-pubescent beneath; blades of the sterile shoots more deeply lobed; the terminal lobe elongate and often acuminate; hypanthium nearly 4 mm. wide, densely stellate; sepals ovate-acute, densely stellate on both sides; petals orbicular, a little over 3 mm. long; carpels 3–5, about 8 mm. long, rounded-ellipsoid, abruptly acute, permanently stellate; seeds pear-shaped, over 1.5 mm. long; caruncle rather long.

Type collected at Auburn, Lee County, Alabama, June 5, 1897, *F. S. Earle & C. F. Baker*.
DISTRIBUTION: Alabama and South Carolina.

7. **Opulaster stellatus** Rydb.; Small, Fl. SE. U. S. 513. 1903.

Spiraea opulifolia ferruginea Nutt.; T. & G. Fl. N. Am. 1: 414. 1840.
Neillia opulifolia ferruginea S. Wats. Bibl. Ind. 1: 290. 1878.
Physocarpus ferrugineus Daniels, Univ. Missouri Stud. Sci. 1: 291. 1907.

A low branched shrub; branches densely stellate-pubescent; petioles 1 cm. or less long; leaf-blades ovate to orbicular in outline, 1–4 cm. long, shallowly 3-lobed, rounded, obtuse or acutish at the apex, obtuse or rounded at the base, copiously stellate, especially beneath; inflorescence rather small; pedicels 1–1.5 cm. long, stellate; hypanthium about 3 mm. wide; sepals ovate, acute, densely stellate on both sides; follicles mostly 4, about 6 mm. long, rounded-ellipsoid, abruptly acute, permanently stellate; seeds pear-shaped, nearly 2 mm. long.

TYPE LOCALITY: Georgia.
DISTRIBUTION: Florida and Georgia.

8. **Opulaster bracteatus** Rydb. Bull. Torrey Club **31**: 558. 1904.

Opulaster Ramaleyi A. Nels. (Bot. Gaz. **34**: 367, in part. 1902); Rydb. Fl. Colo. 179. 1906.

A shrub, 1–2 m. high; branches yellowish-green, glabrous; stipules linear-lanceolate, about 5 mm. long, pubescent; petioles 1–3 cm. long; leaf-blades 2–7 cm. long, broadly ovate or subcordate in outline, more or less deeply 3-lobed, doubly crenate, obtuse or acute at the apex, rounded, truncate or subcordate at the base, glabrous or nearly so, somewhat paler beneath; corymb many-flowered; bracts obovate or spatulate, often foliaceous and more or less persistent, pubescent; pedicels 1–2 cm. long, softly stellate; hypanthium about 4 mm. wide, densely stellate; sepals ovate, acute, densely stellate on both sides, about 3 mm. long; petals white, rounded-ovate, 4–5 mm. long; carpels 2, or rarely 3, densely stellate, united at least half their length; styles ascending.

TYPE LOCALITY: New Windsor, Colorado.
DISTRIBUTION: Mountains of Colorado.

9. **Opulaster glabratus** Rydb. Bull. Torrey Club **31**: 559. 1904.

A shrub, about 1 m. high; branches yellowish or reddish, glabrous; petioles 1–2 cm. long; leaf-blades rounded-ovate, orbicular, or sometimes slightly reniform, 2–3 cm. long,

glabrous, slightly paler beneath, 3–5-lobed, doubly crenate, obtuse or rounded at the apex, truncate or cordate at the base; corymb rather small; bracts small, lanceolate, caducous; pedicels 1–1.5 cm. long, glabrous; hypanthium 3.5–4 mm. wide, almost glabrous; sepals oval or rounded-ovate, obtuse, sparingly stellate without (mostly near the margin) and densely so within, about 3 mm. long; petals rounded-ovate, about 4 mm. long, pink or white; follicles 2, united to above the middle, densely stellate; seeds nearly 2 mm. long, pear-shaped, slightly oblique; caruncle elongate.

TYPE LOCALITY: West Spanish Peak, Colorado.
DISTRIBUTION: Mountains of Colorado.

10. **Opulaster monogynus** (Torr.) Kuntze, Rev. Gen. 949. 1891.

Spiraea monogyna Torr. Ann. Lyc. N. Y. **2**: 194. 1827.
Icotorus montanus Raf. Bull. Bot. Seringe 216. 1830.
Epicostorus montanus Raf. Atl. Jour. **1**: 144. 1832.
Spiraea opulifolia pauciflora T. & G. Fl. N. Am. **1**: 414, in part. 1840.
Spiraea opulifolia parviflora Porter & Coult. Syn. Fl. Colo. 33. 1874.
Neillia Torreyi S. Wats. Proc. Am. Acad. **11**: 136. 1876.
Physocarpus Torreyi Maxim. Acta Hort. Petrop. **6**: 221. 1879.
Neillia monogyna Greene, Pittonia **2**: 29. 1889.
Physocarpus monogynus Coult. Contr. U. S. Nat. Herb. **2**: 104. 1891.

A shrub, usually less than 1 m. high, with usually decumbent stems; branches brownish, glabrous or sparingly stellate; petioles 1 cm. long or less; leaf-blades 1–3 cm., rounded-ovate to reniform in outline, usually rather deeply 3–5-lobed, incised; glabrous or nearly so and green on both sides; corymb rather few-flowered; bracts lanceolate and caducous; pedicels 1–1.5 cm. long, usually sparingly stellate; hypanthium about 3 mm. wide, stellate; sepals lance-ovate to elliptic, usually obtuse, densely stellate on both sides; petals white, orbicular, about 3 mm. long; follicles 2 (rarely 3), united to above the middle, densely stellate, 3–4 mm. long with ascending-spreading beaks; seeds obliquely pear-shaped, over 1.5 mm. long.

TYPE LOCALITY: Rocky Mountains [Colorado].
DISTRIBUTION: High mountains, from the Black Hills of South Dakota and Wyoming to Texas and New Mexico; also Nevada.

11. **Opulaster Hapemanii** Rydberg, sp. nov.

A low shrub, 1 m. or less high; branches brownish and rather densely pubescent; petioles 1 cm. or less long; leaf-blades rounded-ovate to reniform in outline, 1–2 cm. broad, rather deeply 3–lobed, incised, obtuse or rounded at the apex, truncate or cordate at the base, more or less densely stellate on both sides, paler beneath; corymb few-flowered; bracts lanceolate, caducous; pedicels 1–1.5 cm. long, stellate; hypanthium about 3.5 mm. wide, densely stellate; sepals broadly ovate, obtuse, about 3 mm. long; petals white, rounded-oval, about 3 mm. long; follicles 2, densely stellate, united to above the middle; beaks ascending-spreading; seeds pear-shaped, nearly 2 mm. long; caruncle small.

Type collected in the Big Horn Mountains, Wyoming, August, 1892, *Dr. H. Hapeman*.
DISTRIBUTION: Mountains of Wyoming and Utah.

12. **Opulaster malvaceus** (Greene) Kuntze, Rev. Gen. 949. 1891.

Spiraea opulifolia γ Hook. Fl. Bor. Am. **1**: 171. 1832.
Spiraea opulifolia pauciflora T. & G. Fl. N. Am. **1**: 414, in part. 1840.
Spiraea pauciflora Nutt.; T. & G. Fl. N. Am. **1**: 414, as a synonym. 1840.
Neillia malvacea Greene, Pittonia **2**: 30. 1889.
Physocarpus malvaceus Kuntze, Rev. Gen. 219. 1891.
Neillia monogyna malvacea M. E. Jones, Zoe **4**: 43. 1893.
Opulaster pauciflorus Heller, Bull. Torrey Club **25**: 581, 626. 1898.
Opulaster pubescens Rydb. Mem. N. Y. Bot. Gard. **1**: 205. 1900.
Neillia Torreyi Hook. f. Bot. Mag. *pl. 7758*. 1901.
Physocarpus pauciflorus Piper, Fl. Palouse Reg. 94. 1901.

A shrub, 1–2 m. high; branches brown, stellate or glabrous; petioles 1–2 cm. long; leaf-blades orbicular or rounded-ovate in outline, more or less distinctly 3–5-lobed, doubly crenate, glabrous or more or less stellate on both sides, thin, obtuse, or those of the sterile shoots acute at the apex, usually cordate at the base, 2–6 cm. long and about as broad; bracts spatulate or cuneate, caducous; pedicels 1–2 cm. long, densely stellate; hypanthium

4–5 mm. wide, stellate; sepals ovate, 4–5 mm. long, stellate on both sides, acute or sometimes obtuse; petals white, orbicular or broadly obovate, often 5 mm. long; follicles 2, united nearly two-thirds their length, about 5 mm. long, flattened laterally, and somewhat keeled, dehiscent after falling; beaks straight, erect; seeds elliptic-pyriform, 1.5–2 mm. long; caruncle small.

TYPE LOCALITY: Shore of Lake Pend d'Oreille, northern Idaho.
DISTRIBUTION: Mountains, hillsides, and rocky banks, from British Columbia to Oregon, Utah, Wyoming, and Montana.
ILLUSTRATION: Bot. Mag. *pl. 7758* (as *Neillia Torreyi*).

13. **Opulaster alternans** (M. E. Jones) Heller, Cat. N. Am. Pl. ed. 2: 5. 1900.

Neillia opulifolia pauciflora S. Wats. Bot. King's Expl. 80, in part. 1871.
Neillia opulifolia alternans M. E. Jones, Zoe 4: 42. 1893.
Neillia alternans M. E. Jones, Zoe 4: 43, as a synonym. 1893.

A low shrub, with divaricate branches; branches gray, finely stellate; petioles 0.5–1 cm. long; leaf-blades orbicular or reniform, about 1 cm. long, more or less deeply 3-lobed, doubly crenate, rounded or obtuse at the apex, usually cordate at the base, stellate-pubescent on both sides, densely so beneath; corymbs few-flowered; bracts oblanceolate, usually laciniate, caducous; pedicels 1 cm. or less long, densely stellate; hypanthium stellate, 3–4 mm. wide; sepals densely stellate on both sides, ovate, obtuse; petals white, rounded, ovate, about 3 mm. long; follicles usually solitary, about 5 mm. long, densely stellate, beak erect.

TYPE LOCALITY: Schell Creek Mountains, Nevada.
DISTRIBUTION: Mountains of Utah and Nevada.

Tribe 2. **SPIRAEEAE.** Shrubs, undershrubs, or herbs, with alternate leaves without stipules. Flowers racemose, corymbose, paniculate or solitary. Hypanthium hemispheric, campanulate, turbinate, or saucer-shaped. Disk more or less developed, bearing 15–70 stamens. Pistils normally 5, distinct; ovules few. Seeds linear-lanceolate or oblong, pendulous, usually tapering at each end, with a thin seed-coat. Endosperm none or very scant.

Stamens inserted on the margin of the hypanthium; flowers perfect; shrubs or undershrubs with simple leaves.
  Filaments free; leaves entire or toothed.
    Carpels dehiscent on the ventral suture; shrubs with deciduous leaves. 2. SPIRAEA.
    Carpels dehiscent on both sutures; cespitose tufted undershrubs with persistent leaves.
      Flowers racemose, rarely somewhat paniculate; stamens 20. 3. PETROPHYTUM.
      Flowers solitary, nearly sessile at the ends of the short branches; stamens 10. 4. KELSEYA.
  Filaments united at the base; leaves twice or thrice 3-cleft. 5. LUETKEA.
Stamens inserted on the inside of the hypanthium; flowers dioecious; tall herbs with twice or thrice compound leaves. 6. ARUNCUS.

2. **SPIRAEA** L. Sp. Pl. 489. 1753.

Dimopogon Raf. Sylva Tell. 151. 1838.
Xamedryon Raf. Sylva Tell. 151. 1838.
Awayus Raf. Sylva Tell. 151. 1838.

Shrubs of the northern hemisphere, with simple, feather-veined leaves, which are usually serrate, and no stipules. Inflorescence racemose, corymbose or paniculate. Flowers in ours perfect. Hypanthium hemispheric, campanulate or turbinate. Sepals 5, valvate or slightly imbricate. Petals 5, imbricate or contorted, white to red. Stamens 15–70, inserted in 1–several series under the margin of a more or less developed disk; filaments subulate; anthers didymous. Pistils 5, rarely 3, 4, or 6–8, distinct, inserted in the bottom of the hypanthium; styles terminal; stigmas capitate or discoid; ovules 2–several, anatropous, pendulous. Follicles leathery, not inflated, opening along the ventral side; seeds several, in ours usually 4, pendulous, linear-lanceolate or oblong, tapering at both ends; endosperm none or almost none.

Type species, *Spiraea salicifolia* L.

A. Inflorescence simple.
Flowers in axillary umbels. 1. *S. prunifolia.*
Flowers in terminal racemes or corymbs.
Flowers racemose; leaves entire. 2. *S. Hartwegiana.*
Flowers corymbose; leaves toothed. 3. *S. ulmifolia.*
B. Inflorescence compound; flowers paniculate.
I. Panicle flat-topped.
Sepals reflexed.
Carpels hairy; corolla white. 4. *S. Steveni.*
Carpels glabrous; corolla rose-colored. 17. *S. subvillosa.*
Sepals erect or spreading.
Petals pink or rose-colored.
Young twigs, branches of the inflorescence, petioles and veins of the leaves beneath finely puberulent. 5. *S. splendens.*
Whole plant glabrous, except a few cilia on the leaves and bracts.
Leaves rounded-oval to elliptic, crenate above, entire at the base; sepals rounded at the apex. 6. *S. densiflora.*
Leaves elliptic-oblong, sharply serrate; sepals acutish. 7. *S. Helleri.*
Petals white, seldom tinged with rose; corymb larger.
Plant perfectly glabrous. 8. *S. lucida.*
Plant more or less hairy.
Hypanthium abruptly contracted below; leaves slightly if at all glaucous, oval to oblong. 9. *S. corymbosa.*
Hypanthium turbinate, gradually tapering below; leaves very glaucous beneath, very acute.
Leaf-blades oblanceolate or obovate, entire or toothed towards the apex. 10. *S. virginiana.*
Leaf-blades lanceolate or ovate, sharply serrate, except at the base. 11. *S. japonica.*
II. Panicle elongate, conic, ovoid, or lanceolate.
Sepals merely spreading; disk obsolete.
Inflorescence glabrous; leaf-blades broadly oblanceolate to obovate. 12. *S. latifolia.*
Inflorescence pubescent.
Leaf-blades narrowly oblanceolate, broadest above the middle; petals white. 13. *S. alba.*
Leaf-blades lance-elliptic, broadest about the middle; petals pinkish. 14. *S. salicifolia.*
Sepals soon reflexed; disk usually rather conspicuous.
Leaves not tomentose beneath.
Inflorescence short and rather open, oblong, ovoid or obovoid.
Young branches and leaves glabrous; inflorescence small; petals pink. 15. *S. roseola.*
Young branches more or less pubescent; inflorescence usually large.
Leaves glabrous or nearly so, except the margin; petals white. 16. *S. pyramidata.*
Leaves finely pubescent beneath; petals pink. 17. *S. subvillosa.*
Inflorescence long, dense, usually cylindric; petals rose or pink. 18. *S. Menziesii.*
Leaves tomentose beneath.
Petals white; inflorescence short, obovoid. 19. *S. tomentulosa.*
Petals rose or purplish; inflorescence cylindric.
Follicles glabrous.
Leaves widest at or above the middle, coarsely toothed above, entire at the base. 20. *S. Douglasii.*
Leaves lanceolate, broadest below the middle, finely serrate throughout. 21. *S. subcanescens.*
Follicles arachnoid-hairy; leaf-blades ovate or oval, acute at both ends. 22. *S. tomentosa.*

1. **Spiraea prunifolia** Sieb. & Zucc. Fl. Jap. **1**: 131. 1835.

A shrub, 1–3 m. high, upright with slender branches; bark of these brown, at first finely pubescent; leaves short-petioled; blades 2–5 cm. long, ovate or elliptic, serrulate, softly pubescent beneath, glabrous or nearly so above; flowers in 3–6-flowered umbels; pedicels 1–3 cm. long; sepals ovate, obtuse, 1.5 mm. long; petals pure white, rounded-obovate, 4–5 mm. long, exceeding the stamens; follicles glabrous. A cultivated form has double flowers on comparatively long pedicels and more shining leaves.

TYPE LOCALITY: Cultivated in Japanese gardens, probably from Korea or northern China.
DISTRIBUTION: Extensively cultivated and occasionally escaped in the New England States.
ILLUSTRATIONS: Sieb. & Zucc. Fl. Jap. *pl. 70;* Otto, Gartenzeit. 1847: *pl. 1;* Fl. Serres 2: *pl. 153, 154;* C. K. Schneid. Handb. Laubh. 1: *f. 288.*

2. **Spiraea Hartwegiana** Rydberg.

Spiraea parvifolia Benth. Pl. Hartw. 36. 1840. Not *S. parvifolia* Raf. 1838.

A small shrub, 9–12 dm. high; bark of the twigs chestnut-brown, glabrous, shining; buds glabrous; leaf-blades oblanceolate or linear-cuneate, rather crowded, 7–15 mm. long, 2–3

mm. wide, entire, thick, dark-green, mucronate; inflorescence racemose, 1–2 cm. long; bracts linear, 1–3 mm. long; pedicels about 2 mm. long; hypanthium turbinate, glabrous, about 1.5 mm. high; sepals triangular, acute, about 1 mm. long, valvate in aestivation; petals white, obovate, about 2 mm. long; stamens 15–20; filaments subulate, half as long as the petals; pistils usually 3; follicles obovoid, apiculate, 2–2.5 mm. long, glabrous; seeds about 4, linear-lanceolate, acute at both ends.

TYPE LOCALITY: Puenta del Dio, Mexico.
DISTRIBUTION: Known only from the type locality.

3. **Spiraea ulmifolia** Scop. Fl. Carn. ed. 2. **1**: 349. 1772.

Spiraea chamaedryfolia Jacq. Hort. Vind. **2**: 66. 1772. Not *S. chamaedryfolia* L. 1753.

A shrub, about 2 m. high; bark of the young twigs light-brown or yellowish; that of the previous season's growth rather dull, more or less exfoliating, and of the old stems brown; petioles slender, 5–10 mm. long; leaf-blades thin, oval or ovate, 3–5 cm. long, acute at both ends, sharply and more or less doubly serrate, green on both sides, sparingly hairy or glabrous except the margins; inflorescence a rather dense, rounded corymb; pedicels 1.5–2 cm. long, glabrous; hypanthium campanulate, glabrous, fully 1.5 mm. deep; sepals glabrous, nearly 2 mm. long, ovate, acute, in fruit more or less reflexed; petals white, orbicular or rounded-ovate, about 5 mm. long; follicles glabrous, oblong, about 3 mm. long, their beaks minute.

TYPE LOCALITY: Near Idria, Carniola, Austria.
DISTRIBUTION: Austria-Hungary and Balkan Peninsula; cultivated and occasionally escaped in the eastern states; especially established in Connecticut.
ILLUSTRATIONS: Jacq. Hort. Vind. *pl. 140*; Bot. Reg. 15: *pl. 1222* (both as *S. chamaedryfolia*); Scop. Fl. Carn. *pl. 22**; Loud. Arb. *f. 430*; Fl. Deuts. ed. 5, *pl. 2563A*.

4. **Spiraea Steveni** (C. K. Schneid.) Rydberg.

Spiraea chamaedrifolia media Pursh, Fl. Am. Sept. 342, in part. 1814.
Spiraea chamaedryfolia Cham. & Schlecht Linnaea **2**: 2. 1827. Not *S. chamaedryfolia* L. 1753.
Spiraea chamaedrifolia β Hook. Fl. Bor. Am. 1: 171. 1832.
Spiraea betulifolia β T. & G. Fl. N. Am. 1: 414. 1840.
Spiraea betulifolia Rothr. Rep. Smithson. Inst. 1867: 445, name. 1867.—Greene, Pittonia **2**: 219. 1892. Not *S. betulifolia* Pallas, 1784.
Spiraea Beauverdiana Steveni C. K. Schneid. Bull. Herb. Boiss. II. **5**: 348. 1905.

A low shrub, 4–6 dm. high; bark of twigs dark-brown, finely puberulent, the outer layer sooner or later exfoliating; petioles 1–2 mm. long; leaf-blades elliptic or oval, 1–4 cm. long, crenate except at the base, minutely puberulent or glabrate, usually rounded at both ends; inflorescence flat-topped, 2–5 cm. wide, its branches puberulent; hypanthium hemispheric, scarcely 1 mm. deep, puberulent; sepals ovate, acute, 1 mm. long, at last reflexed; petals white, orbicular, about 2 mm. long; follicles oblanceolate, pubescent, 3–4 mm. long, their beaks about 1 mm. long; seeds linear-lanceolate, tapering at each end.

TYPE LOCALITY: Kamchatka.
DISTRIBUTION: Alaska to the Mackenzie; also in Kamchatka.

5. **Spiraea splendens** Baumann; K. Koch, Monats. Ver. Bef. Gart. Preuss. **18**: 294. 1875.

Spiraea betulifolia rosea A. Gray, Proc. Am. Acad. **8**: 381. 1872.
Spiraea lucida rosea Greene, Pittonia **2**: 221. 1892.
Spiraea rosea Koehne, Deuts. Dendr. 218. 1893. Not *S. rosea* Raf. 1838.
Spiraea arbuscula Greene, Erythea **3**: 63. 1895.

A shrub, 6–12 dm. high, with erect branches; bark of the twigs dark reddish-brown, finely puberulent, the outer layer exfoliating the following year; leaves subsessile or with very short petioles; blades oval, rounded at both ends, 2–3.5 cm. long, dull, thick, finely puberulent beneath, serrate or doubly serrate, but usually entire at the base, strongly veined beneath; inflorescence small, dense, flat-topped or rounded, 2–4 cm. (seldom 5 cm.) high and broad, its branches finely puberulent; hypanthium hemispheric, glabrous or nearly so, 1.5 mm. deep; sepals triangular, acute, erect or merely spreading; petals rose-colored, obovate, about

1 mm. long, surpassed by the slender filaments ; follicles shining, oblanceolate, their bodies about 2.5 mm. and beaks 1 mm. long ; seeds linear-lanceolate, nearly 2 mm. long.

TYPE LOCALITY : California.
DISTRIBUTION : In the mountains of California and Oregon.

6. **Spiraea densiflora** Nutt.; T. & G. Fl. N. Am. 1 : 414. 1840.

A low shrub, 2–6 dm. high, with ascending branches ; bark of the twigs dark reddish-brown, glabrous, the outer layers exfoliating sooner or later ; that of the older stems often dark purplish-brown ; leaves with very short petioles ; blades oval or elliptic, rounded at each end, glabrous or essentially so, bright-green above, somewhat paler beneath, crenate or serrate above the middle, entire at the base, 1.5–3 cm. long ; inflorescence small, flat-topped or rounded, 2–4 cm. high and broad, its branches glabrous ; hypanthium glabrous, hemispheric, slightly more than 1 mm. deep ; sepals ovate, obtuse, erect or merely spreading ; petals rose-colored, nearly 1.5 mm. long, obovate, surpassed by the slender filaments ; follicles glabrous and shining, oblanceolate, their bodies nearly 3 mm. and beaks 1 mm. long ; seeds linear-lanceolate, nearly 2 mm. long.

TYPE LOCALITY : Not given, but Nuttall's specimens were collected in the Blue Mountains of Oregon.
DISTRIBUTION : In the mountains from British Columbia to Oregon, Wyoming, and Montana.

7. **Spiraea Helleri** Rydberg, sp. nov.

A low shrub, less than 1 m. high ; bark of twigs glabrous, reddish-brown, becoming very dark and exfoliating the next year ; petioles about 2 mm. long ; leaf-blades rather dark-green, glabrous, elliptic, acute or obtuse, 2–4 cm. long, sharply serrate, except at the very base ; inflorescence flat-topped or rounded, about 3 cm. broad and high, its branches glabrous ; hypanthium glabrous, hemispheric, about 1 mm. deep ; sepals ovate, acute, erect or spreading, about 1 mm. long ; petals rose-colored, oval, 1.5 mm. long.

Type collected near Summit Station (Donner Pass), Nevada County, California, in 1903, *A. A. Heller 7022* (herb. N. Y. Bot. Gard.)
DISTRIBUTION : On damp hillsides, Sierra Nevada, in the vicinity of the type locality.

8. **Spiraea lucida** Dougl.; Hook. Fl. Bor. Am. 1 : 172, as a synonym. 1832. — Greene, Pittonia 2 : 221. 1892.

Spiraea betulifolia Hook. Fl. Bor. Am. 1 : 172. 1832. Not *S. betulifolia* Pall. 1784.
Spiraea corymbosa lucida Zabel, Handb. Laubh. Deuts. Dendr. Ges. 157. 1903.

A low shrub, with creeping rootstock ; stems and branches erect, often dying down annually to near the base, 3–10 dm. high ; bark of the twigs glabrous, rather light-brown, the outer layers sooner or later peeling off and then becoming darker ; petioles 4–8 mm. long ; blades of the lower leaves obovate, of the upper oval, often acutish, 2–6 cm. long, thin, glabrous throughout, more or less shining above, paler beneath, coarsely serrate or incised ; inflorescence flat-topped, 3–10 cm. broad ; hypanthium hemispheric, glabrous, 1.5 mm. deep, light-green ; sepals triangular, acute, about 1 mm. long, erect or merely spreading ; petals white, orbicular, about 2 mm. long ; filaments slender, about twice as long as the petals ; follicles glabrous, shining, oblanceolate, about 3.5 mm. long, their beaks 1 mm. long ; seeds linear-lanceolate, attenuate at each end, 2.5–3 mm. long.

TYPE LOCALITY : Valleys of the Rocky Mountains.
DISTRIBUTION : In the mountains, from British Columbia to Oregon, Wyoming, and Saskatchewan.

9. **Spiraea corymbosa** Raf. Préc. Découv. 36. 1814.

Spiraea betulifolia Pursh, Fl. Am. Sept. 342. 1814. Not *S. betulifolia* Pallas, 1784.
Spiraea sororia Penny ; G. Don, in Loud. Hort. Brit. ed. 2. 600. 1832.
Spiraea ostryfolia Raf. New Fl. 3 : 69. 1838.
Spiraea repens Raf. New Fl. 3 : 70. 1838.
Spiraea betulifolia corymbosa Maxim.; C. K. Schneid. Handb. Laubh. 1 : 479. 1905.

A shrub, 3–10 dm. high ; stems erect, simple or slightly branched ; bark of the twigs chestnut-brown or reddish, usually with scattered hairs, sometimes quite pubescent or glabrate, sooner or later exfoliating ; petioles 3–8 mm. long ; leaf-blades thin, oval, elliptic or

suborbicular, 2–10 cm. long, coarsely and sharply serrate above the middle, with sharp or mucronate teeth, rounded, subcordate, or acute at the base, acute, obtuse, or even rounded at the apex, paler beneath, with scattered hairs on the veins and petioles; panicle flat-topped, 3–10 cm. wide; branches more or less pubescent; hypanthium hemispheric, 1 mm. deep; sepals triangular, acute, erect or merely spreading; petals orbicular, white, 1.5 mm. long; follicles oblanceolate, glabrous, shining, about 3 mm. long, their beaks less than 1 mm. long.

TYPE LOCALITY: Virginia.
DISTRIBUTION: Banks and rocky places, from New York to Georgia and Kentucky.
ILLUSTRATIONS: Bot. Cab. *pl. 671;* Wats. Dendr. *pl. 67*, as *S. betulifolia;* Britt. & Brown, Ill. Fl. *f. 1885.*

10. **Spiraea virginiana** Britton, Bull. Torrey Club **17**: 314. 1890.

A shrub, 3–12 dm. high, the branches erect or reclining; bark of twigs light-brown, more or less pubescent, in age becoming glabrous, not exfoliating; petioles 2–5 mm. long; leaf-blades oblanceolate or oblong, thin, mucronate or cuspidate, acute or rarely rounded at the base, entire or with a few teeth towards the apex, 3–5 cm. long, 1–1.5 cm. wide, dark-green above, pale and glaucous beneath, glabrous or finely pubescent on the veins; inflorescence flat-topped, 3–5 cm. wide; branches more or less pubescent; hypanthium shortly turbinate-campanulate, 1.5 mm. deep; sepals triangular, acute, 1 mm. long, erect or spreading; petals white, ovate-orbicular, nearly 2 mm. long; follicles glabrous, shining.

TYPE LOCALITY: Damp rocks along the Monongahela River, Morgantown, West Virginia.
DISTRIBUTION: Rocky places, from West Virginia to North Carolina and Tennessee.
ILLUSTRATION: Britt. & Brown, Ill. Fl. *f. 1886.*

11. **Spiraea japonica** L. f. Suppl. 262. 1781.

Spiraea callosa Thunb. Fl. Jap. 209. 1784.
Spiraea Fortunei Planch. Fl. Serres **9**: 35. 1853.

A shrub, 8–15 dm. high, erect; bark of the twigs purplish-brown, finely villous when young; petioles very short, 2–7 mm. long; leaf-blades ovate or lanceolate, 5–10 cm. long, 2–4 cm. wide, glabrous above, more or less pubescent beneath, sharply and usually doubly serrate from near the base, acute or acuminate; inflorescence a compound corymb, mostly flat-topped, 5–15 cm. wide, finely villous; hypanthium turbinate, 1 m. high, pubescent; sepals triangular, 1 mm. long, in age more or less reflexed; petals pink or rose, rounded-obovate, 3 mm. long; disk weakly developed; follicles erect or nearly so, glabrous.

TYPE LOCALITY: Japan.
DISTRIBUTION: Native of Japan; often cultivated and escaped; established at several stations from Connecticut to Pennsylvania.
ILLUSTRATION: Fl. Serres *pl. 871.*

12. **Spiraea latifolia** (Ait.) Borkh. Handb. Forstbot. 1871. 1803.

Spiraea salicifolia latifolia Ait. Hort. Kew. **2**: 198. 1789.
Spiraea carpinifolia Willd. Enum. Hort. Berol. 540. 1809.
Spiraea crenata Muhl. Cat. 49. 1813.—Torr. Fl. U. S. 482. 1824. Not *S. crenata* L.
Spiraea alba Wats. Dendr. *pl. 133.* 1824. Not *S. alba* DuRoi, 1772.
Spiraea ovata Raf. New Fl. **3**: 65. 1838.
Spiraea heterophylla Raf. New Fl. **3**: 65. 1838.
Spiraea obovata Raf. New Fl. **3**: 66. 1838.
Spiraea bethlehemensis K. Koch, Dendr. **1**: 313. 1869.
Spiraea alba latifolia Dippel, Handb. Laubh. **3**: 484. 1893.

A shrub, 1–20 dm. high, branched; bark of the twigs glabrous, chestnut or reddish or the older sometimes nearly black, sooner or later peeling off; petioles 2–4 mm. long; leaf-blades broadly oblanceolate or obovate, thin, 2–8 cm. long, acute, obtuse or rounded at the apex, tapering at the base, sharply and sometimes doubly serrate, perfectly glabrous or slightly ciliate on the ribs and petioles; inflorescence paniculate, conic, 0.5-2 dm. long and about half as wide; bracts sometimes ciliate; hypanthium hemispheric, less than 1 mm. deep, glabrous; sepals triangular, acute, spreading or slightly reflexed in anthesis, ascending in fruit; petals white or a little pinkish in bud, suborbicular, 1.5 mm. long; follicles oblanceolate, glabrous and shining, 3–4 mm. long; seeds linear-lanceolate, attenuate at each end.

TYPE LOCALITY: North America.
DISTRIBUTION: Newfoundland to North Carolina, western Pennsylvania, and Saskatchewan.
ILLUSTRATIONS: Wats. Dendr. *pl. 133*, as *S. alba;* Britt. & Brown, Ill. Fl. *f. 1883*, as *S. salicifolia;* Cycl. Am. Hort. *f. 2638*.

13. **Spiraea alba** DuRoi, Harbk. Baumz. **2** · 430. 1772.

Spiraea lomentosa alba Marsh. Arbust. 147. 1785.
Spiraea salicifolia paniculata Ait. Hort. Kew. **2**: 198. 1789.
Spiraea cuneifolia Borkh. Handb. Forstbot. 1455. 1803.
Spiraea lancifolia Hoffmsgg. Preisverz. Pfl. **8**: Nacht. 44. 1825.
Spiraea paniculata Willd.; G. Don, Gen. Hist. **2**: 520. 1832.
Spiraea flexuosa Raf. New Fl. **3**: 64. 1838.
Spiraea ciliata Raf. New Fl. **3**: 66. 1838.
Spiraea salicifolia lanceolata T. & G. Fl. N. Am. **1**: 415. 1840.
Spiraea salicifolia linearis Wenzig, Flora **71**: 280. 1888.

A shrub, 1–2 m. high; bark of the twigs brown, more or less puberulent, of the older stems gray; petioles 2–5 mm. long, puberulent; leaf-blades narrowly oblanceolate, rather firm, more or less puberulent on the veins, sharply serrate, acute at each end, 3–6 cm. long, 1–1.5 cm. wide; inflorescence paniculate, conic, 5–20 cm. long, its branches usually densely puberulent; hypanthium hemispheric, nearly 1 mm. high, puberulent; sepals triangular, acute, ascending or spreading; petals white, about 2 mm. long, suborbicular; follicles glabrous, shining, oblanceolate, about 3.5 mm. long; seeds linear-lanceolate, tapering at each end, about 2 mm. long.

TYPE LOCALITY: America.
DISTRIBUTION: New England to North Carolina, Iowa, North Dakota and Saskatchewan.
ILLUSTRATION: Mill. Fig. Pl. Gard. Dict. **2**: *pl. 257, f. 2*.

14. **Spiraea salicifolia** L. Sp. Pl. 489. 1753.

Spiraea carpinifolia Wats. Dendr. *pl. 66*. 1823. Not *S. carpinifolia* Willd. 1809.
Spiraea grandiflora Lodd. Bot. Cab. *pl. 1988*. 1833. Not *S. grandiflora* Sweet, 1830.
Spiraea amena Raf. New Fl. **3**: 65. 1838.

A shrub, 1–2 m. high; bark of the somewhat angled young twigs brown, finely puberulent, that of the old stems dark-gray; petioles 2–6 mm. long, puberulent; leaf-blades lance-oblong, broadest at the middle, acute at each end, sharply serrate, 3–7 cm. long, puberulent on the midrib and margins; inflorescence a narrow panicle, 5–10 cm. long, 2–3 cm. wide, its branches puberulent; hypanthium hemispheric, about 1 mm. deep, usually puberulent; sepals ovate, acute; petals pink, rounded-ovate, obtuse, about 2 mm. long; follicles oblanceolate, glabrous, about 4 mm. long.

TYPE LOCALITY: Siberia.
DISTRIBUTION: Native of Siberia and eastern Russia; occasionally escaped from cultivation in the eastern states.
ILLUSTRATIONS: Pallas, Fl. Ross. *pl. 21;* Engl. Bot. *pl. 1468;* Bot. Cab. *pl. 1988*, as *S. grandiflora;* Wats. Dendr. *pl. 66*, as *S. carpinifolia*.

15. **Spiraea roseata** Rydberg, sp. nov.

A low shrub; bark of young shoots pale, glabrous and rather shining; that of the older branches chestnut; buds glabrous; petioles 1–2 mm. long; leaf-blades elliptic, 2–5 cm. long, 1–2 cm. wide, sharply serrate, with the teeth directed forward, acutish at each end or the smaller obtuse at the apex, thin, glabrous on both sides; inflorescence small and dense, oblong, 2–6 cm. long, 1–2 cm. wide; hypanthium hemispheric, 1 mm. high, glabrous; sepals triangular-ovate, acute, slightly over 1 mm. long, glabrous or nearly so, soon reflexed; petals rose-colored, elliptic, 2–2.5 mm. long; stamens 20–25; filaments twice as long as the petals; disk inconspicuous. Intermediate between *S. Menziesii* and *S. densiflora*, and perhaps a hybrid between the two.

Type collected August 13, 1895, on the shores of Petitt Lake, Idaho, within 100 yards of the lake at an altitude of 2180 meters, *B. W. Everman 304* (U. S. Nat. Herb. *no. 243090*); there also collected by Henderson.

16. **Spiraea pyramidata** Greene, Pittonia **2**: 221. 1892.

A shrub, 3–10 dm. high; bark of the twigs chestnut-brown and more or less pubescent, exfoliating sooner or later; petioles 2–5 mm. long, puberulent; leaf-blades oval, usually

acute at each end, coarsely and doubly serrate above, entire at the base, 3–9 cm. long, somewhat paler beneath; inflorescence paniculate, short-conic or ovoid; branches more or less hairy; hypanthium hemispheric, less than 1 mm. deep, hairy; sepals ovate, acute, reflexed, hairy; petals white, rounded-obovate, about 2 mm. long; follicles glabrous, oblanceolate, about 3 mm. long; seeds linear-lanceolate, attenuate at each end, about 2 mm. long. By some regarded as a hybrid between *S. lucida* and *S. Menziesii*.

TYPE LOCALITY: Dry woods of the lower Yakima River, near Clealum, Washington.
DISTRIBUTION: Along streams and in wet places, from British Columbia to Oregon and Idaho.

17. **Spiraea subvillosa** Rydberg, sp. nov.

A shrub, 1 m. high or less; bark of the twigs chestnut-brown, more or less villous with short fine hairs; petioles about 5 mm. long, villous-puberulent; leaf-blades thin, oval or elliptic, 4–6 cm. long, 1.5–2 cm. wide, glabrous above, somewhat villous-puberulent and paler beneath, acute at each end or obtuse at the apex, coarsely serrate above the middle; inflorescence short, ovoid, or sometimes nearly flat-topped, finely villous, dense; hypanthium hemispheric, about 1 mm. deep; sepals triangular-ovate, 1 mm. long, reflexed in fruit; petals rounded-oval, nearly 2 mm. long, pink; follicles glabrous. Perhaps a hybrid between *S. Douglasii* and *S. densiflora*.

Type collected at the Cascades of the Columbia, Oregon, 1886, *Thomas Howell*.
DISTRIBUTION: Type locality and on Hood River, Oregon.

18. **Spiraea Menziesii** Hook. Fl. Bor. Am. **1**: 173. 1832.

Spiraea cuneifolia Raf. New Fl. **3**: 67. 1838.
Spiraea Douglasii Menziesii Presl, Epim. Bot. 195. 1852.

A shrub, 1–1.5 m. high; bark of the twigs brown and usually puberulent, exfoliating the second year; that of older stems very dark, purplish; petioles 3–5 mm. long; leaf-blades elliptic, oblong or oval, serrate above the middle, acute, obtuse or rounded at either end, glabrous or puberulent on the veins, 3–10 cm. long; inflorescence paniculate, very dense, long and narrow, spike-like; branches villous-puberulent; hypanthium villous-puberulent, hemispheric, less than 1 mm. deep; sepals pubescent, ovate, acute, reflexed; petals rose-colored, suborbicular, 1.5 mm. long; follicles oblanceolate, about 2 mm. long, glabrous.

TYPE LOCALITY: Northwest coast of America.
DISTRIBUTION: Along streams, from southern Alaska and British Columbia to Oregon and Idaho.

19. **Spiraea tomentulosa** Rydberg, sp. nov.

A low shrub; twigs chestnut-brown and sparingly short-villous; buds short-villous; petioles 1–3 cm. long; leaf-blades elliptic, 3–5 cm. long, 1.5–2 cm. wide, serrate above the middle, acute at each end, finely pubescent or glabrate and green above, grayish or brownish, velvety beneath; inflorescence obovoid-rounded, 7–9 cm. long, about 4 cm. wide; branches somewhat hairy; hypanthium hemispheric, fully 1 mm. deep, sparingly villous-pubescent; sepals ovate, acute, 1 mm. long, at last reflexed; petals orbicular, fully 2.5 mm. long, white; carpels glabrous, 2.5 mm. long; stamens about 20, one-half longer than the petals. Intermediate between and perhaps a hybrid of *S. Douglasii* and *S. lucida*.

Type collected in border of woods, Falcon Valley, Washington, in 1881, *W. N. Suksdorf 5*.

20. **Spiraea Douglasii** Hook. Fl. Bor. Am. **1**: 172. 1832.

A shrub, 1–2.5 m. high; bark of twigs brown and more or less tomentose, exfoliating the second season; petioles short, 3–5 mm. long; leaf-blades elliptic, oblong, oval or oblong-cuneate, 3–10 cm. long, usually acute at each end, serrate above the middle, dark-green above, white tomentose beneath; inflorescence paniculate, very long and narrow, congested; branches tomentose; hypanthium tomentose, hemispheric, less than 1 mm. deep; sepals tomentose outside, ovate, acute, reflexed; petals rose-colored, rounded-obovate or oval, about 1.5 mm. long; follicles oblanceolate, nearly 3 mm. long, glabrous and shining.

TYPE LOCALITY: Northwest coast of America, about the Columbia.
DISTRIBUTION: Lowlands, from British Columbia to California.
ILLUSTRATIONS: Paxton's Mag. Bot. 12: *pl. 195;* Ann. Soc. Agr. Bot. Gand 1: *pl. 40;* Fl. Serres 2: *pl. 3;* Cycl. Am. Hort. *f. 2369.*

21. **Spiraea subcanescens** Rydberg, sp. nov.

A low shrub; bark of twigs finely tomentose, brown; petioles 1–2 mm. long; leaf-blades lanceolate, 3–6 cm. long, about 1.5 cm. wide, firm, dark-green and slightly hairy above, tomentulose beneath, strongly veined, sharply and finely serrate throughout, acute at both ends; inflorescence rather small, dense, narrow, 5–10 cm. long, 1.5–2.5 cm. thick; hypanthium densely pubescent, hemispheric, less than 1 mm. deep; sepals triangular-ovate, acute, reflexed in fruit; petals pink, nearly orbicular, 1.5 mm. long; follicles about 2 mm. long, glabrous. Perhaps a hybrid between *S. tomentosa* and *S. alba.*

Type collected near Anderson, South Carolina, in 1885, *Lewis R. Gibbes.*

22. **Spiraea tomentosa** L. Sp. Pl. 489. 1853.

Spiraea rosea Raf. New Fl. **3**: 62. 1838.
Spiraea ferruginea Raf. New Fl. **3**: 63. 1838.
Spiraea glomerata Raf. New Fl. **3**: 63. 1838.
Spiraea parvifolia Raf. New Fl. **3**: 63. 1838.

A shrub, 3–12 dm. high; bark of twigs purplish or brown, tomentose; petioles very short, 2–3 mm. long; leaf-blades oval, ovate-lanceolate or oblong, usually acute at the apex, acute or rounded at the base, coarsely crenate-serrate, dark-green and usually slightly puberulent above, densely white- or somewhat rusty-tomentose beneath, 3–6 cm. long, 1–2.5 cm. wide; inflorescence paniculate, dense and usually narrow, 1–2 dm. long, 3–5 cm. wide, its branches tomentose; hypanthium tomentose, hemispheric, less than 1 mm. deep; sepals triangular, in fruit reflexed; petals pink, purplish, or rarely white, orbicular-ovate, about 1.5 mm. long; follicles oblong, about 2.5 mm. long, tomentose or arachnoid.

TYPE LOCALITY: Philadelphia.
DISTRIBUTION: In swampy and wet places from Nova Scotia to Georgia, Arkansas, Kansas, and Manitoba.
ILLUSTRATIONS: Raf. Med. Bot. 2: *pl. 88;* Britt. & Brown, Ill. Fl. *f. 1884.*

EXCLUDED SPECIES

Spiraea hypericifolia L. Sp. Pl. 489. 1853 (*S. hypericifolia Plukenetiana* Seringe, in DC. Prodr. 2: 543. 1825; *S. virgata* Raf. New. Fl. 3: 72. 1838; *S. Hookeriana* Raf. *loc. cit.* 73), was based at least in part on Plukenet's *Prunus canadensis.* His figure of this plant may just as well represent *Prunus cuneifolia* as the species which has borne the name *S. hypericifolia* L. The latter is not an American plant, although the older botanists repeatedly referred it to this continent.

Several garden hybrids, especially of *S. salicifolia*, *S. Douglasii*, and *S. tomentosa*, have been described.

3. **PETROPHYTUM** (Nutt.) Rydb. Mem. N. Y. Bot. Gard. 1: 206. 1900.

Spiraea § *Petrophytum* Nutt.; T. & G. Fl. N. Am. 1: 418. 1840.

Densely cespitose and depressed undershrubs with prostrate branches, growing on rocks. Leaves oblanceolate or spatulate, entire, coriaceous, evergreen, crowded on the short branches. Inflorescence racemose, rarely compound. Flowers perfect. Hypanthium hemispheric. Sepals 5, valvate. Petals 5, imbricate, white. Stamens about 20; filaments filiform, distinct, about twice as long as the sepals. Disk evident, entire-margined. Pistils 3–5; ovary and lower part of the style very hairy; style filiform, terminal; stigma minute, entire; ovules 2–4, pendulous. Follicles leathery, dehiscent along both sutures; seeds linear.

Type species, *Spiraea caespitosa* Nutt.

Leaves 3-ne ved.
- Petals obovate or oval; leaves sparingly strigose or glabrate. — 1. *P. Hendersoni.*
- Petals spatulate or oblanceolate; leaves minutely canescent as well as strigose. — 2. *P. cinerascens.*

Leaves 1-nerved ; petals spatulate or oblanceolate.
  Leaves spatulate, spreading ; racemes short, 1–4 cm. long ; bracts usually shorter than the flowers.
    Leaves and sepals sparingly strigose, the latter acuminate ; petals very acute or acuminate. 3. *P. acuminatum.*
    Leaves and sepals canescent, the latter acute ; petals mostly obtuse. 4. *P. caespitosum.*
  Leaves narrowly oblanceolate, erect or ascending ; inflorescence 4–10 cm. long, often branched ; bracts usually exceeding the flowers. 5. *P. elatius.*

1. **Petrophytum Hendersoni** (Canby) Rydberg.

Eriogynia Hendersoni Canby, Bot. Gaz. **16** : 236. 1891.
Luetkea Hendersoni Greene, Pittonia **2** : 219. 1892.
Spiraea Hendersoni Piper, Erythea **7** : 172. 1899.

A depressed cespitose undershrub ; season's branches 1–4 cm. long, ascending ; leaves spatulate, 1–2 cm. long, 4–6 mm. wide, thick, more or less distinctly 3-ribbed beneath, sparingly and finely appressed-hairy or glabrate ; peduncles 4–8 cm. long, sparingly silky, with few, bract-like linear leaves, 3–6 mm. long ; pedicels 4–5 mm. long with a small linear-subulate bractlet at the middle ; hypanthium hemispheric, less than 1 mm. deep, 10-nerved ; sepals 1.5 mm. long, oblong, obtuse ; petals obovate or oval, 2.5 mm. long ; disk crenulate on the edge, pubescent within ; follicles about 2 mm. long, glabrate except the strigose ciliate upper suture.

TYPE LOCALITY : Vertical cliffs near the summit of the Olympic Mountains, Washington.
DISTRIBUTION : Olympic Mountains, Washington.

2. **Petrophytum cinerascens** (Piper) Rydberg.

Spiraea cinerascens Piper, Erythea **7** : 171. 1899.
Luetkea cinerascens Heller, Muhlenbergia **1** : 53. 1904.

A densely cespitose undershrub, with short stout branches ; season's branches 1 cm. long or less ; leaves 3-ribbed, oblanceolate, obtuse or acutish, 1–2.5 cm. long, thick and leathery, cinereous, pilose ; blade contracted below into a short petiole ; peduncles cinereous, 5–15 cm. long, with narrowly linear-oblanceolate to subulate bractlike leaves, the larger 1 cm. long ; inflorescence often with a few branches ; pedicels 1–4 mm. long, with linear-subulate bractlets near the base ; hypanthium hemispheric or somewhat turbinate, less than 1 mm. deep ; sepals lanceolate, acuminate, nearly 2 mm. long, cinereous ; petals spatulate or oblanceolate, obtuse, about 2 mm. long ; stamens 15–25 ; follicles 4–7, sparsely pilose, 3 mm. long ; seed usually solitary, acute at each end.

TYPE LOCALITY : Bluffs of the Columbia River, Washington, twelve miles south of Chelan, in crevices of basaltic rock.
DISTRIBUTION : Type locality and vicinity.

3. **Petrophytum acuminatum** Rydberg, sp. nov.

A densely cespitose undershrub ; season's branches less than 1 cm. long ; leaf-blades oblanceolate, 1–1.5 cm. long, 2–4 mm. wide, sparingly and finely pilose, 1-ribbed, thick, mucronate at the apex, contracted below into short petioles ; peduncles 6–8 cm. high, sparingly pubescent, with a few subulate or narrowly linear-oblanceolate bract-like leaves ; pedicels 2–3 mm. long ; hypanthium somewhat turbinate, less than 1 mm. deep ; sepals lanceolate, acuminate, 1.5–2 mm. long ; petals oblanceolate, acute or acuminate, 2–2.5 mm. long ; fruit unknown.

Type collected at Big Arroyo, Tulare County, California, in 1904, *Culbertson* [*Baker's distribution no.*] *4540.*

4. **Petrophytum caespitosum** (Nutt.) Rydb. Mem. N. Y. Bot. Gard. **1** : 206. 1900.

Spiraea caespitosa Nutt.; T. & G. Fl. N. Am. **1** : 418. 1840.
Eriogynia caespitosa S. Wats. Bot. Gaz. **15** : 242. 1890.
Luetkea caespitosa Kuntze, Rev. Gen. 217. 1891.

A densely cespitose undershrub, forming large flat patches appressed to the rocks ; season's shoots very short ; leaves spatulate, 5–12 mm. long, 2–4 mm. wide, densely silky, 1-ribbed, obtuse or mucronate ; peduncles 3–10 cm. high, silky, their leaves subulate, bract-

like; inflorescences short, 1–4 cm. long, dense, usually simple; pedicels 1–2 mm. long; hypanthium hemispheric, 1 mm. deep, densely silky; sepals ovate-lanceolate, acute, 1.5 mm. long; petals spatulate, obtuse, 1.5 mm. long; follicles 3–5, 2 mm. long, 2–3-ovuled, 1–2-seeded.

TYPE LOCALITY: On high shelving rocks, in the Rocky Mountains, towards the sources of the Platte.

DISTRIBUTION: On rocks, from the Black Hills of South Dakota to New Mexico, Arizona, California, and Montana.

ILLUSTRATION: Bot. Gaz. 15: *pl. 14*.

5. **Petrophytum elatius** (S. Wats.) Heller, Cat. N. Am. Pl. ed. 2. 5. 1900.

Spiraea caespitosa elatior S. Wats. Bot. King's Expl. 81. 1871.
Luetkea caespitosa elatior Britton, Trans. N. Y. Acad. Sci. 14: 31. 1894.

A cespitose undershrub, but not so tufted as the preceding; shoots of the season often 2–3 cm. long, erect; leaves silky, oblanceolate, acute, 1.5–2 cm. long, 3–4 mm. wide, usually with more distinct petioles; peduncles 1–2 dm. high, silky, their leaves linear-oblanceolate, often 1–1.5 cm. long; inflorescence often branched, 4–10 cm. long; pedicels 2–4 mm. long; hypanthium somewhat turbinate, 1 mm. deep; sepals lanceolate, 2 mm. long, acute or acuminate; petals oblanceolate, 2–3 mm. long.

TYPE LOCALITY: Eastern end of Raft River Mountains, Utah.
DISTRIBUTION: Mountains of Utah and Arizona.

4. **KELSEYA** (S. Wats.) Rydb. Mem. N. Y. Bot. Gard. 1: 207. 1900.

Eriogynia § *Kelseya* S. Wats. Proc. Am. Acad. **25**: 130. 1890.

Densely cespitose, pulvinate undershrubs, with short branches. Leaves entire, crowded, leathery, persistent. Flowers perfect, solitary, almost sessile, enclosed in the rosettes of the leaves. Hypanthium hemispheric. Sepals 5, valvate. Petals 5, imbricate. Stamens about 10; filaments filiform, about twice as long as the sepals; anthers didymous. Disk inconspicuous, entire. Pistils about 5; styles terminal; stigmas minute; ovules 3–4, pendulous. Follicles leathery, not inflated, opening along both sutures; seeds elongate-fusiform.

Type species, *Eriogynia uniflora* S. Wats.

1. **Kelseya uniflora** (S. Wats.) Rydb. Mem. N. Y. Bot. Gard. 1: 207. 1900.

Eriogynia uniflora S. Wats. Proc. Am. Acad **25**: 130. 1890.
Luetkea uniflora Kuntze, Rev. Gen. 217. 1891.
Spiraea uniflora Piper, Erythea **7**: 172. 1899.

An undershrub, forming mats on the rocks; leaves crowded, 2–3 mm. long, more or less silky-pubescent; sepals oblong, obtuse, 1.5 mm. long; petals narrowly spatulate, nearly 3 mm. long, white; stamens and pistils of about the same length; follicles 2–2.5 mm. long, splitting first on the inner, later also on the outer sutures; seeds usually 2.

TYPE LOCALITY: The Gate of the Mountains, near Townsend, Montana.
DISTRIBUTION: On cliffs in the mountains of Montana and northern Wyoming.
ILLUSTRATION: Bot. Gaz. 15: *pl. 14*.

5. **LUETKEA** Bong. Mém. Acad. St. Petersb. VI. **2**: 130. Au 1832.

Eriogynia Hook. Fl. Bor. Am. 1: 255. 1832.

Cespitose undershrubs, with decumbent or creeping, stoloniferous branches. Leaves twice or thrice ternately dissected, grooved above. Flowers perfect, racemose. Hypanthium hemispheric. Sepals 5, valvate. Petals 5, while in bud contorted. Stamens about 20; filaments subulate, connate at the base; anthers didymous. Disk thickened, about 10-lobed. Pistils 4–6, usually 5, distinct; styles terminal, deciduous; stigmas truncate; ovules several, pendulous. Follicles coriaceous, dehiscent on both sutures. Seeds linear-lanceolate, acute at both ends; embryo linear, radicle superior; endosperm none.

Type species, *Luetkea sibbaldioides* Bong.

1. **Luetkea pectinata** (Pursh) Kuntze, Rev. Gen. 217. 1891.

Saxifraga pectinata Pursh, Fl. Am. Sept. 312. 1814.
Luetkea sibbaldioides Bong. Mém. Acad. St. Petersb. VI. **2**: 130. 1832.
Eriogynia pectinata Hook. Fl. Bor. Am. **1**: 255. 1832.
Spiraea pectinata T. & G. Fl. N. Am. **1**: 417. 1840.
Saxifraga caespitosa A. Gray, Proc. Am. Acad. **8**: 383. 1870.

Flowering shoots 5–15 cm. high, leafy, glabrous; leaves 1–1.5 cm. long, dissected into linear acute divisions, grooved above, glabrate; raceme short, 1–5 cm. long; bracts ternate, or the upper ones entire; hypanthium hemispheric, about 2 mm. wide; sepals ovate, acute, 2 mm. long, glabrous; petals white, orbicular or rounded-obovate, 3–3.5 mm. long; stamens and styles included; follicles about 4 mm. long, in age nearly glabrous and shining.

TYPE LOCALITY: On the northwest coast [of America].
DISTRIBUTION: Mountains from Bering's Strait to Oregon and the Canadian Rockies.
ILLUSTRATIONS: Bong. *loc. cit. pl. 2*; Hook, Fl. Bor. Am. *pl. 88*; Bot. Gaz. **15**: *pl. 14*.

6. **ARUNCUS** (L.) Adans. Fam. Pl. **2**: 295. 1763.

Perennial herbs with thick rhizomes, twice or thrice ternate-pinnatisect leaves, and no stipules. Inflorescence a large panicle with spike-like branches. Flowers dioecious. Hypanthium of the staminate flowers flat or saucer-shaped, pentagonal. Sepals triangular, valvate. Petals 5, orbicular to spatulate, white. Stamens 15–30; filaments subulate, distinct, long-exserted; anthers didymous. Disk 5-lobed. Pistils 3–5, rudimentary, style-less. Pistillate flowers much smaller. Petals elliptic to oblanceolate. Stamens rudimentary; filaments short; anthers minute, empty. Pistils 3–5, distinct; styles short, obliquely terminal; stigmas capitate; ovules 8–12, pendulous. Follicles oblong, cartilaginous, dehiscent along the ventral suture and then splitting dorsally at the apex, in our species reflexed; Seeds few, attenuate at each end, with loose membranous coat; endosperm present.

Type species, *Spiraea Aruncus* L.

Follicles about 3 mm. long.
  Petals of the staminate flowers broadly rounded-obovate, about $\frac{4}{5}$ as broad as long; leaflets lanceolate with long acumination. 1. *A. acuminatus*.
  Petals of the staminate flowers spatulate, $\frac{2}{5}$–$\frac{3}{5}$ as broad as long; leaflets ovate, with shorter acumination. 2. *A. Aruncus*.
Follicles about 2 mm. long.
  Leaves decidedly hairy, rather firm and dull; follicles about $\frac{3}{4}$ mm. thick. 3. *A. pubescens*.
  Leaves glabrous or nearly so, shining, thin; follicles about 1 mm. thick.
    Inflorescence open, with long branches; leaflets doubly serrate. 4. *A. allegheniensis*.
    Inflorescence dense, with short branches; leaflets laciniate. 5. *A. kamchaticus*.

1. **Aruncus acuminatus** (Dougl.) Rydberg, sp. nov.

Spiraea Aruncus Hook. Fl. Bor. Am. 1: 173. 1832. Not *S. Aruncus* L. 1753.
Spiraea acuminata Dougl.; Hook. *loc. cit.* as a synonym.

Stem 1–2 m. high, glabrous; lower leaves thrice compound, first ternate; the lower divisions usually pinnate with 5 leaflets, and the terminal again ternate; the lower divisions of this with 3 and the terminal one pinnate with 5 leaflets; leaflets 3–12 cm. long, lanceolate, long-acuminate at the apex, acute, truncate or subcordate at the base, sharply and doubly serrate, thin, more or less hairy on both sides, especially along the veins, or sometimes glabrous; the upper leaves less compound and sometimes pinnately 5-foliolate; panicles terminal and axillary, 1–4 dm. long, that of the staminate plant often more leafy and with shorter branches; branches 3–15 cm. long, in fruit very lax; petals of the staminate flowers broadly rounded-obovate, about 1 mm. long and $\frac{4}{5}$ as broad; those of the pistillate flowers slightly smaller, elliptic; follicles about 3 mm. long and 1 mm. thick, shining.

TYPE LOCALITY: Mouth of the Columbia.
DISTRIBUTION: Moist woods and along streams, from northern Oregon to Alaska, and inland to the Selkirk Mountains of British Columbia.

2. **Aruncus Aruncus** (L.) Karst. Deuts. Fl. 779. 1882.

Spiraea Aruncus L. Sp. Pl. 490. 1753.
Ulmaria Aruncus Hill, Hort. Kew. 214. 1769.
Aruncus vulgaris Raf. Sylva Tell. 152. 1838.
Aruncus sylvester Kostel. Ind. Hort. Prag. 15. 1844.
Astilbe Aruncus Trev. Bot. Zeit. **13**: 819. 1855.
Spiraea paniculata St.-Lag. Ann. Soc. Bot. Lyon **7**: 135. 1880.

Plant 12–20 dm. high, much resembling the preceding; leaflets 2–7 cm. long, broader and shorter, ovate, abruptly acuminate with a short, narrow acumination, dark-green above, paler beneath, often more hairy, usually rounded at the base and sharply doubly serrate; petals of the staminate flowers narrower, spatulate and more distinctly clawed, white; petals of fertile flowers greenish-white and slightly smaller; follicles about 3 mm. long and 1 mm. wide, very shining.

TYPE LOCALITY: Austria.
DISTRIBUTION: A native of Europe, cultivated in this country and rarely escaped in the eastern and central states.
ILLUSTRATIONS: Pall. Fl. Ross. *pl. 26;* Fl. Deuts. ed. 5, *pl. 2564.*

3. **Aruncus pubescens** Rydberg, sp. nov.

Stem 1–2 m. high; lower leaves compound as in the preceding two species or ternate with the divisions pinnately 5-foliolate; leaflets 3–10 cm. long, when mature firmer than the other American species, dark-green and rather dull, ovate, short-acuminate at the apex, acute or rounded at the base, more evenly and less distinctly doubly serrate than in the rest, glabrous above, rather copiously hairy beneath; panicle 1–4 dm. long, its branches 3–10 cm. long; petals of the staminate flowers obovate, hardly 1 mm. long, scarcely clawed, white; those of the pistillate flowers slightly smaller; follicles about 2 mm. long and ¾ mm. wide.

Type collected in rich woods, Peoria, Illinois, in July, 1903, *F. E. McDonald* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Woods, from Illinois and Iowa to Oklahoma, Arkansas, and southwestern Virginia.

4. **Aruncus allegheniensis** Rydberg, sp. nov.

?*Spiraea Aruncus hermaphrodita* Michx. Fl. Bor. Am. 1: 294. 1803.
?*Spiraea Aruncus americana* Pers. Syn. Pl. 2: 46. 1806.
?*Spiraea americana* Steud. Nom. Bot. 1: 805. 1821.
?*Aruncus americanus* Raf. Sylva Tell. 152; hyponym. 1838.
Aruncus sylvestris americanus Maxim. Acta Hort. Petrop. 6: 170. 1879.

Plant 1–2.5 m. high, glabrous; leaves compound as in *A. acuminatus*, but the lower divisions of the lower leaves often again ternate; leaflets thin, shining, 3–10 cm. long, ovate with a short acumination at the apex, usually acute or the terminal rounded at the base, sharply doubly serrate, glabrous or nearly so on both sides; inflorescence 1–3 dm. long, with spreading branches 3–10 cm. long; flowers lax; petals white, obovate to oblanceolate, clawless; follicles about 2 mm. long and 1 mm. thick.

Type collected near Baltimore, Maryland, in 1867, *P. V. LeRoy* (herb. Columbia Univ.).
DISTRIBUTION: Mountains, from Pennsylvania to Georgia, Alabama, and Kentucky.

5. **Aruncus kamchaticus** (Maxim.) Rydberg.

Aruncus sylvester kamchatica Maxim. Acta Hort. Petrop. 6: 170. 1879.

Plant 1 m. high or less, glabrous or nearly so throughout; leaves twice to thrice ternate; leaflets thin, broadly ovate, abruptly acuminate with a short, slender acumination, often oblique at the base, 3–6 cm. long, more or less deeply laciniate and sharply toothed; inflorescence short, less than 1 dm. long; branches short, 1–5 cm. long, densely flowered; staminate flowers much larger than the pistillate; petals broadly obovate, in the latter scarcely 1 mm. long; follicles about 2 mm. long and 1 mm. wide.

TYPE LOCALITY: Kamchatka, near Petropavlovski.
DISTRIBUTION: Island of Attu, Alaska; also in Kamchatka and the Kurile Islands.

Tribe 3. **SORBARIEAE.** Shrubs or perennial herbs, with alternate pinnately dissected leaves and persistent stipules. Infloresence paniculate or cymose. Hypanthium hemispheric, campanulate, or turbinate, bearing 10–50 stamens. Pistils normally 5, distinct, opposite to the sepals. Endosperm present, not scant.

Petals obovate or spatulate, imbricate; carpels united at the base; leaves pinnately compound.
Follicles dehiscent to the base on both sutures; leaves simply pinnate. 7. SCHIZONOTUS.

Follicles on the dorsal side dehiscent only at the apex; leaves twice or thrice pinnately dissected. 8. CHAMAEBATIARIA.
Petals strap-shaped, convolute in the bud; carpels free; leaves ternately compound. 9. PORTERANTHUS.

7. SCHIZONOTUS Lindl. Introd. Nat. Syst. 81. 1830.

Spiraea § *Sorbaria* Seringe, in DC. Prodr. **2**: 545. 1825.
Basilima Raf. New Fl. **3**: 75. 1838.
Sorbaria A. Br.; Aschers. Fl. Brand. 177. 1864.

Shrubs, natives of Asia, with odd-pinnate leaves, conspicuous leafy stipules, and paniculate inflorescence. Flowers perfect. Hypanthium hemispheric. Sepals 5, imbricate, soon reflexed. Petals 5, imbricate. Stamens 40–50, inserted on the margin of the disk, unequal. Pistils 4–8, usually 5, opposite the sepals, connate about one-third their length; styles terminal or nearly so; stigmas capitate; ovules several, pendulous. Follicles thin, cartilaginous, dehiscent on both sutures. Seeds few; endosperm present.

Type species, *Spiraea sorbifolia* L.

1. Schizonotus sorbifolius (L.) Lindl.; Steud. Nom. Bot. ed. 2. 2: 531. 1841.

Spiraea sorbifolia L. Sp. Pl. 490. 1753.
Spiraea pinnata Moench, Meth. 663. 1794.
Basilima sorbifolia Raf. New Fl. **3**: 75. 1838.
Sorbaria sorbifolia A. Br.; Aschers. Fl. Brand. 177. 1864.

A large shrub, 1–2 m. high; leaves pinnate with 13–21 leaflets, which are lanceolate, acuminate, 4–8 cm. long, sharply but finely double-serrate, dark-green, glabrous or stellate-puberulent on the rachis and ribs; stipules lanceolate, toothed; inflorescence 1–3 dm. long; sepals ovate, 1.5 mm. long, glabrous; petals white, rounded-obovate, about 3 mm. long; filaments filiform, about twice as long as the petals; follicles oblong-cylindric, pilose; styles terminal, recurved.

TYPE LOCALITY: Swamps of Siberia.
DISTRIBUTION: Native of northern Asia; cultivated for ornament and occasionally escaped in northeastern United States and eastern Canada.
ILLUSTRATION: Pall. Fl. Ross. *pl. 24*.

8. CHAMAEBATIARIA (Porter) Maxim. Acta Hort. Petrop. **6**: 225. 1879.

Spiraea § *Chamaebatiaria* Porter, Bot. Calif. 1: 170. 1876.

Low shrubs, more or less stellate-pubescent and scurfy, with bipinnatisect leaves and paniculate flowers. Hypanthium turbinate. Sepals 5, erect, imbricate. Petals 5, rounded, erect. Stamens about 60, inserted on the margin of the disk. Pistils 5, more or less united below; styles terminal; stigmas capitate; ovules about 8, pendulous. Follicles coriaceous, dehiscent on the ventral suture and at the apex on the dorsal one. Seeds few, terete, not appendaged; endosperm fleshy and somewhat oily, adherent to the seed-coat.

Type species, *Spiraea Millefolium* Torr.

Secondary divisions of the leaves 15–17 pairs, 0.5 mm. long, entire; twigs scarcely glutinous. 1. *C. Millefolium*.
Secondary divisions of the leaves 6–10 pairs, 1–2 mm. long, usually toothed; twigs very glutinous. 2. *C. glutinosa*.

1. Chamaebatiaria Millefolium (Torr.) Maxim. Acta Hort. Petrop. **6**: 225. 1879.

Spiraea Millefolium Torr. Pacif. R. R. Rep. **4**: 83. 1857.
Sorbaria Millefolium Focke, in E. & P. Nat. Pfl. 3^3: 16. 1888.
Basilima Millefolium Greene, Fl. Fran. 57. 1891.

A densely branched shrub, less than 1 m. high; bark of the young twigs brown, more or less densely covered by a stellate tomentum; that of the old stems glabrous and

gray; leaves 2–4 cm. long, more or less crowded at the ends of the branches, glabrous above, stellate-tomentose beneath, short-petioled, oblong in outline; primary divisions, of about 20 pairs, 4–8 mm. long, the upper confluent; secondary divisions 15–17 pairs, subalternate, decurrent, about 0.5 mm. long, entire, obovate; panicle 3–10 cm. long, leafy below; sepals lanceolate-deltoid, acute, 3 mm. long; petals white, rounded-obovate, about 5 mm. long, wavy and crenulate; stamens of about the same length; follicles about 5 mm. long, lanceolate, glabrous; seeds linear-lanceolate.

TYPE LOCALITY: Low hills and valleys near William's Mountains [Arizona].
DISTRIBUTION: Among rocks, from Idaho and Nevada to Arizona and southern California.
ILLUSTRATION: Pacif. R. R. Rep. 4: *pl. 5*.

2. **Chamaebatiaria glutinosa** Rydberg, sp. nov.

A shrub, 1–2 m. high; bark of the young twigs brown, somewhat stellate and very glutinous; that of the old stems grayish-brown and glabrous; leaves 4–5 cm. long, glabrous above, somewhat stellate-villous beneath; primary divisions 15–20 pairs, 6–10 mm. long, the upper confluent; secondary divisions 6–10 pairs, 1–2 mm. long, obovate, usually more or less toothed; panicle 4–5 cm. long, leafy; sepals lanceolate, 3 mm. long, acute; petals rounded-obovate, 4.5–5 mm. long, crenulate; fruit unknown.

Type collected in a precipitous cañon on the western slope of Mammoth Range, a few miles from Ellsworth, Nye County, Nevada, in 1868, *M. B. Howard* (herb. Columbia Univ.).
DISTRIBUTION: Type locality and neighboring California.

9. **PORTERANTHUS** Britton, Mem. Torrey Club 4: 115. 1894.

Gillenia Moench, Meth. Suppl. 286. 1802. Not *Gillena* Adans. 1763.

Tall perennial herbs with horizontal rootstocks, trifoliolate leaves and foliaceous stipules. Hypanthium cylindro-campanulate. Sepals 5, imbricate. Petals 5, convolute in aestivation, linear-oblanceolate, clawed. Stamens 20–25, in three series; filaments subulate; anthers oval, fixed by the middle of the back. Pistils 5, opposite the sepals, free or at first slightly connate below; styles terminal; stigmas punctiform; ovules 2–8, ventral or basal, ascending. Follicles free, coriaceous at maturity, splitting the calyx, dehiscent along the ventral suture and the apex dorsally. Seeds 1–3, erect with a spongy-coriaceous coat, rugulose; endosperm thick, adherent to the coat; radicle inferior.

Type species, *Gillenia trifoliata* Moench.

Leaflets serrate; stipules subulate or linear-lanceolate, entire. 1. *P. trifoliatus*.
Leaflets at least of the lower leaves incised or laciniate; stipules ovate to nearly orbicular, foliaceous, toothed. 2. *P. stipulatus*.

1. **Porteranthus trifoliatus** (L.) Britton, Mem. Torrey Club 4: 115. 1894.

Spiraea trifoliata L. Sp. Pl. 490. 1753.
Ulmaria trifoliata Hill, Hort. Kew. 214. 1769.
Gillenia trifoliata Moench, Meth. Suppl. 286. 1802.

Stem 6–12 dm. high, glabrous or nearly so; leaflets short-stalked or subsessile, lanceolate, oblanceolate, obovate, or oval, acuminate, serrate, 10–14 cm. long, glabrous or puberulent above, more or less pubescent and paler beneath; stipules 5–8 mm. long, 1–2 mm. wide; panicle 5–15 cm. long, often leafy; hypanthium 5–6 mm. long, 3–4 mm. wide, veiny; sepals lanceolate, acuminate, about 3 mm. long; petals clawed, 15–18 mm. long, white, their blades linear-oblanceolate; follicles about 5 mm. long, obovoid, puberulent; seeds oblong, 3-angled, brown, warty; stamens 20–25, of equal length.

TYPE LOCALITY: Virginia.
DISTRIBUTION: Woodlands, from Ontario and New York to Michigan, Missouri, and Georgia.
ILLUSTRATIONS: Bigelow, Am. Med. Bot. *pl. 41;* Barton, Veg. Mat. Med. *pl. 5;* Mem. Torrey Club 4: *pl. 76;* Britt. & Brown, Ill. Fl. *f. 1888*.

2. **Porteranthus stipulatus** (Muhl.) Britton, Mem. Torrey Club 4: 115. 1894.

Spiraea stipulata Muhl.; Willd. Enum. 542. 1809.
Spiraea stipulacea Pursh, Fl. Am. Sept. 343. 1814.
Gillenia stipulacea Barton, Veg. Mat. Med. 71. 1817.

Stem 5–10 dm. long, more or less pubescent; stipules ovate to orbicular, double-toothed to laciniate, 1–2 cm. long; leaflets oblanceolate, 5–8 cm. long, acuminate, more or less pubescent on both sides; those of the lower leaves incised or laciniate with acuminate teeth; those of the upper deeply and sharply double-serrate; inflorescence leafy; hypanthium 4–5 mm. long, 3–3.5 mm. thick; sepals lance-ovate, acute or somewhat acuminate; petals white or pinkish, 12–15 mm. long, clawed; blades oblanceolate; stamens 20, the outer 10 much longer; follicles 6–7 mm. long, puberulent; seeds oval, 3 mm. long, longitudinally rugulose.

TYPE LOCALITY: Pennsylvania.
DISTRIBUTION: In woods, western New York to Kansas, Louisiana, and Georgia.
ILLUSTRATIONS: Barton, Veg. Mat. Med. *pl. 6;* Mem. Torrey Club 4: *pl. 77;* Britt. & Brown, Ill. Fl. *f. 1889.*

Tribe 4. **QUILLAJEAE.** Shrubs or trees, with alternate simple leaves and deciduous stipules. Inflorescence cymose, paniculate, or racemose. Hypanthium hemispheric to flat, with a prominent disk bearing 10–30 stamens. Pistils normally 5, opposite the sepals, or rarely fewer, free or in our genera more or less united. Seeds winged, only rarely with traces of endosperm.

Carpels wholly united into a 5-celled capsule. 10. LINDLEYELLA.
Carpels free above, at maturity wholly distinct. 11. VAUQUELINIA.

10. **LINDLEYELLA** Rydberg.

Lindleya H.B.K. Nov. Gen. & Sp. 6: 239. 1823. Not *Lindleya* H.B.K. 1821, nor *Lindleya* Nees, 1821.

Evergreen trees, with linear stipules, and shining coriaceous crenate leaves. Flowers perfect, solitary or in small clusters at the end of leafy branches. Hypanthium short-turbinate, adnate to the ovaries. Sepals 5, imbricate. Petals 5, imbricate, rounded, deciduous, thick. Stamens 15–25, inserted on the margin of the disk, those opposite the petals shorter; filaments thick, subulate; anthers versatile. Pistils 5, opposite the sepals, wholly connate, forming in fruit an almost woody 5-celled capsule; styles 5, thick; stigmas obliquely capitate. Cells of the capsule splitting along the dorsal sutures. Seeds 2, collateral, semi-orbicular with a thin wing; endosperm none; cotyledons plane; radicle superior.

Type species, *Lindleya mespiloides* H.B.K.

Leaf-blades oblong-lanceolate or oblanceolate; petals rounded-obovate, 8–10 mm. long. 1. *L. mespiloides.*
Leaf-blades obovate; petals obovate, about 15 mm. long. 2. *L. Schiedeana.*

1. **Lindleyella mespiloides** (H.B.K.) Rydberg.

Lindleya mespiloides H.B.K. Nov. Gen. & Sp. 6: 240. 1823.

A shrub or small tree, 2–3 m. high; bark of the twigs and branches dark-gray, glabrous, with numerous lenticels; leaves short-petioled; blades oblong-lanceolate or oblanceolate, acute or mucronate at the apex, cuneate at the base, 1–3 cm. long, finely and densely toothed with glandular-mucronate teeth, strongly reticulate, glabrous and shining above, paler beneath; stipules linear-subulate, glandular-toothed, 1–1.5 mm. long, early caducous; pedicels very short; hypanthium turbinate, 4–5 mm. long and nearly as wide; sepals ovate, acute, glandular-denticulate, glabrous outside, somewhat villous within; stamens about 20; filaments subulate; petals white, rounded-obovate, 8–10 mm. long, usually retuse; fruit rounded-ovoid, 5-angled, 7–8 mm. long and about as wide.

TYPE LOCALITY: Between La Puente de la Madre de Dios and the village of Magdalena, Mexico.
DISTRIBUTION: Mexico.
ILLUSTRATIONS: H.B.K. Nov. Gen. & Sp. *pl. 562 bis;* Rev. Hortic. 1854: 81, *f. 5;* Ann. Soc. Agr. Bot. Gand 4: *pl. 209;* E. & P. Nat. Pfl. 3^3: *fig. 7, A–C.*

2. **Lindleyella Schiedeana** Rydberg, sp. nov.

Lindleya mespiloides Schlecht. Linnaea 13: 404. 1839. Not *L. mespiloides* H.B.K. 1823.

A tree, 3 m. high or more; bark of twigs and branches dark brownish-gray, warty with numerous lenticels; leaves short-petioled; blades obovate, 3–4 cm. long, reticulate, shin-

ing above, dull beneath, acute, obtuse or mucronate at the apex, abruptly contracted at the base, finely crenate; stipules subulate, glandular-toothed, 3 mm. long; pedicels very short; hypanthium broader and shorter than in the preceding, 3 mm. deep and 5 mm. wide; sepals ovate, acute, 5 mm. long; stamens about 20; filaments subulate; petals about 15 mm. long, obovate.

Type collected between Zimapan and San José del Oro, Mexico, *Schiede*.
DISTRIBUTION: Southern Mexico.
ILLUSTRATIONS: Bot. Reg. **30**: *pl. 27*; Fl. Serres **4**: *pl. 357* (both as *Lindleya mespiloides*).

11. **VAUQUELINIA** Correa; H. & B. Pl. Aequin. **1**: 140. 1808.

Shrubs or small trees, with coriaceous serrate leaves, small deciduous stipules and corymbose perfect flowers. Hypanthium short-turbinate. Sepals 5, persistent, coriaceous, valvate. Petals 5, imbricate, deciduous. Stamens 15–25, inserted on the margin of the disk, subequal; filaments subulate; anthers didymous, versatile. Pistils 5, opposite the sepals, connate into a 5-celled, ovoid, densely tomentose capsule; styles 5, short, parallel, at last deciduous; stigmas capitate. Ovules in each cell 2, erect, collateral. Capsule woody, tomentose, at maturity forming 5 follicles, coherent at the base and splitting into 2 valves; seeds 2 in each cell, erect, collateral, compressed and winged at the apex; endosperm none; cotyledons plane; radicle straight, inferior.

Type species, *Vauquelinia corymbosa* Correa.

Lower surface of the leaves and the inflorescence glabrous.
  Petioles about equaling the leaf-blades; hypanthium glabrous within. 1. *V. corymbosa.*
  Petioles much shorter than the leaf-blades; hypanthium hairy within.
    Leaf-blades linear or nearly so, 1 cm. wide or less. 2. *V. angustifolia.*
    Leaf-blades oblong, about 2.5 cm. wide. 3. *V. Karwinskyi.*
Lower surface of the leaves and the inflorescence finely tomentose, especially when young. 4. *V. californica.*

1. **Vauquelinia corymbosa** Correa; H. & B. Pl. Aequin. **1**: 140. 1808.

A tree, up to 10 m. high, and with a trunk 20–27 cm. in diameter; bark of the young drooping twigs red, that of the trunks shining, ash-colored; petioles reddish, about as long as the blades, flat above; leaf-blades coriaceous, glabrous, shining above, paler beneath, with numerous almost parallel veins beneath, lanceolate, about 5 cm. long and 18 mm. wide, sharply dentate, acute at each end; corymb shorter than the leaves; hypanthium glabrous on both surfaces; sepals ovate; petals oval, white, a little longer than the sepals; fruit ovoid, pubescent, about 5 mm. long.

TYPE LOCALITY: Actopan, Mexico.
DISTRIBUTION: Hidalgo.
ILLUSTRATION: H. & B. Pl. Aequin. **1**: *pl. 40*.

2. **Vauquelinia angustifolia** Rydberg, sp. nov.

Vauquelinia corymbosa C. K. Schneid. Handb. Laubh. **1**: 492, in part. 1905.

A shrub, 3–5 m. high and trunk 5–10 cm. in diameter; bark of the young ascending twigs glabrous and light greenish-brown, of the older branches chestnut-brown, more or less fissured and cracked; petioles 1–2 cm. long, glabrous; leaf-blades linear, 5–10 cm. long, coriaceous, shining, dark-green above, yellowish-green beneath, sharply dentate, acute at each end, strongly reticulate; corymbs rather small, glabrous; bracts subulate, 5–8 mm. long; hypanthium glabrous without, villous at the base within; sepals ovate, nearly 2 mm. long, glabrous without, villous on the margins within; petals orbicular, 4 mm. long; stamens slightly shorter; fruit ovoid, about 6 mm. long, densely pubescent.

Type collected in the Santa Eulalia Mountains, Chihuahua, Mexico, in 1885, *C. G. Pringle 5*.
DISTRIBUTION: Chihuahua.
ILLUSTRATION: C. K. Schneid. Handb. Laubh. **1**: *f. 302 l–p* (as *V. corymbosa*).

3. **Vauquelinia Karwinskyi** Maxim. Acta Hort. Petrop. **6**: 236. 1879.

A shrub, 2–3 m. high; petioles about 1 cm. long; leaf-blades oblong, 7–8 cm. long, 2.5 cm. wide, dentate, glabrous, light-green, strongly reticulate; corymbs many-flowered, glabrous;

bracts lanceolate; hypanthium hemispheric, densely hairy inside; sepals ovate-acute or obtuse; petals rounded; stamens unequal, the outer alternate with the petals, nearly twice as long as the inner; carpels much thickened on the back at the margins.

TYPE LOCALITY: Santyaguillo, Mexico.
DISTRIBUTION: Central Mexico.

4. **Vauquelinia californica** (Torr.) Sargent, Gard. & Forest 2: 400. 1889.

Spiraea californica Torr. in Emory, Notes Mil. Rec. 140. 1848.
Vauquelinia corymbosa Torr. Bot. Mex. Bound. 64. 1859.
Vauquelinia Torreyi S. Wats. Proc. Am. Acad. 11: 147. 1876.

A shrub or small tree, 5–6 m. high and with a trunk sometimes 18 cm. in diameter, with brown heart-wood and yellow sap-wood; bark of the upright twigs reddish-brown, more or less densely covered with a white tomentum; that of the trunk brown and broken; petioles about 1 cm. long; leaf-blades lanceolate, usually acuminate or acute at the apex, acute or slightly rounded and often oblique at the base, finely dentate, finely puberulent when young, soon glabrous and yellowish-green above, finely tomentose beneath, 2.5–7 cm. long, 0.5–1.5 cm. wide; corymb many-flowered, tomentose; hypanthium hemispheric, 3 mm. wide; sepals tomentose on both sides, ovate, acute, 1.5 mm. long; petals oval, 5 mm. long, white; stamens of about the same length; fruit ovoid, about 5 mm. long, pubescent.

TYPE LOCALITY: High mountains near the Gila [Arizona].
DISTRIBUTION: Mountains of Arizona, Sonora, and Lower California.
ILLUSTRATION: Sargent, Silva N. Am. 4: *pl. 164.*

Tribe 5. **HOLODISCEAE.** Shrubs or small trees, with alternate, simple, toothed leaves and no stipules. Inflorescence racemose or paniculate. Hypanthium saucer-shaped or hemispheric. Disk more or less developed, bearing about 20 stamens; anthers didymous. Pistils 5, alternate with the sepals, pubescent; styles terminal; ovules 2, collateral, pendulous. Fruit indehiscent, one-seeded, stipitate, laterally flattened. Seeds not appendaged; endosperm a mere vestige.

12. **SERICOTHECA** Raf. Sylva Tell. 152. 1838.

Schizonotus Raf. New Fl. 3: 74. 1838. Not *Schizonotus* Lindl. 1830.
Spiraea § *Holodiscus* K. Koch, Dendr. 1: 309. 1869.
Holodiscus Maxim. Acta Hort. Petrop. 6: 253. 1879.

Sepals 5, 3-nerved, valvate in the bud, in fruit erect. Petals 5, white or pinkish, short-clawed. Stamens about 20. Achenes inclosed in the calyx, short-stipitate, long-hairy, membranaceous, indehiscent, caducous, strongly arched on the lower suture. Seeds broadly oblong, with double coat; embryo with superior radicle and ovate cotyledons.

Type species, *Spiraea argentea* Kunth, which is the same as *Spiraea argentea* L. f.

Teeth of the leaves rounded to rounded-ovate, ending in a short mucro; achenes straight on the upper edge; stamens usually equaling the sepals.
  Leaves grayish- or whitish-tomentose and villous beneath.
    Inflorescence ample, well-compound; leaves usually over 3 cm. long.
      Leaf-blades abruptly contracted below, scarcely decurrent on the petioles.
        Disk inconspicuous, leaves usually with many teeth.
          Leaf-blades thin, sparingly pubescent or glabrate above, usually acute at the base; sepals oblong or lance-oblong, obtuse or acutish. 1. *S. discolor.*
          Leaf-blades thick and dark-green and densely short-pubescent (when young velvety) above, rounded or truncate at the base; sepals ovate, acute. 2. *S. franciscana.*
        Disc very thick and conspicuous; leaves short with few teeth. 3. *S. pachydisca.*
      Leaf-blades cuneate at the base and distinctly decurrent on the winged petioles. 4. *S. dumosa.*
    Inflorescence small and narrow, simple, racemose, or with a few short, spreading branches; leaves usually less than 2 cm. long.
      Leaf-blades abruptly contracted at the base into the short petioles.
        Leaves 10–30 mm. long; blades densely villous above, more or less doubly serrate; sepals broadly ovate, 2 mm. long. 5. *S. Boursieri.*

Leaves 8–15 mm. long; blades sparingly strigose above, round-crenate; sepals lance-ovate, 1.5 mm. long. 6. *S. saxicola.*
Leaf-blades cuneate at the base.
Leaves almost equally finely and densely pubescent, almost velvety, on both sides. 7. *S. concolor.*
Leaves finely pubescent and green above, white silky-villous and tomentose beneath. 8. *S. microphylla.*
Leaves glandular-atomiferous and slightly hairy on the veins beneath, not at all tomentose.
Leaf-blades more or less double-toothed, abruptly contracted at the base. 9. *S. Schaffneri.*
Leaf-blades with simple teeth, cuneate at the base.
Leaves 1.5–3 cm. long, villous-pubescent above. 10. *S. obovata.*
Leaves 1–1.5 cm. long, glabrous or sparingly pubescent. 11. *S. glabrescens.*
Teeth of the leaves lanceolate or triangular-ovate ending in a long mucro; achenes more or less convex on both edges, although more so on the lower; stamens shorter than the sepals; leaf-blades entire at the cuneate base.
Leaves glabrous above; upper edge of the carpels only slightly curved. 12. *S. fissa.*
Leaves pubescent above; upper edge of the achenes strongly curved.
Leaves green and velvety above. 13. *S. velutina.*
Leaves silvery-silky on both sides. 14. *S. argentea.*

1. **Sericotheca discolor** (Pursh) Rydberg.

Spiraea discolor Pursh, Fl. Am. Sept. 342. 1814.
Spiraea ariaefolia Smith, in Rees, Cycl. **33**: no. 16. 1819.
Schizonotus discolor Raf. New Fl. **3**: 75. 1838.
Spiraea discolor ariaefolia S. Wats. Bot. Calif. 1: 170. 1876.
Holodiscus discolor Maxim. Acta Hort. Petrop. 6: 254. 1879.
Schizonotus argenteus ariaefolius Kuntze, Rev. Gen. 225. 1891.
Schizonotus argenteus discolor Kuntze, Rev. Gen. 225. 1891.
Schizonotus ariaefolius Greene, Fl. Fran. 58, in part. 1891.
Schizonotus discolor ariaefolius Koehne. Deuts. Dendr. 265. 1893.
Holodiscus ariaefolius Greene, Man. Bay Reg. 113. 1894.
Holodiscus discolor ariaefolius Jepson, Fl. W. Middle Calif. 277, in part. 1901.
Schizonotus discolor Purshianus Rehder, Cycl. Am. Hort. 1627. 1902.

A shrub, 1–4.5 m. high; bark of the young twigs light-brown, more or less villous and tomentose; that of the older branches darker, chestnut or purplish, exfoliating; petioles 1–2 cm. long, villous; leaf-blades rounded-ovate or oval, usually double-toothed with broadly ovate, mucronate teeth, acute at the apex, truncate, rounded or cuneate at the base, but slightly if at all decurrent, 4–10 cm. long, thin, green and sparingly pubescent or in age glabrate above, more or less densely villous and tomentose beneath, in the typical form white, but in the more common form (*Spiraea ariaefolia*) merely grayish; inflorescence conic or ovate, 10–20 cm. long, 5–15 cm. wide, twice or thrice compound; branches villous, usually divergent; hypanthium small, saucer-shaped; sepals oblong or lance-oblong, obtuse or acutish, 1.25–1.5 mm. long; petals white, elliptic, 1.5 mm. long or more; stamens 15–20, filaments 2–2.5 mm. long; pistils usually 5; carpels semi-ovate, straight on the inner, strongly curved on the outer margin, 1–5 mm. long with a beak of the same length.

TYPE LOCALITY: Banks of the Kooskoosky.
DISTRIBUTION: Hills and river-banks, from British Columbia to northern California, Idaho, and western Montana.
ILLUSTRATIONS: Bot. Reg. 16: *pl. 1365;* Loud. Arb. *f. 446, 447* (both as *S. ariaefolia*); Cycl. Am. Hort. *f. 2269.*

2. **Sericotheca franciscana** Rydberg, sp. nov.

Spiraea discolor Brew. & Wats. Bot. Calif. 1: 170, in part. 1876. Not *Spiraea discolor* Pursh.
Schizonotus ariaefolius Greene, Fl. Fran. 58; in part. 1891.
Holodiscus ariaefolius Greene, Man. Bay Reg. 113; in part. 1894.
Holodiscus discolor ariaefolius Jepson, Fl. W. Middle Calif. 277, in part. 1901.

A tall shrub, 2–7 m. high; bark of the young twigs rather dark-brown, villous and tomentose, that of the older branches more or less exfoliating; petioles 5–10 mm. long, villous; leaf-blades thick, 3–6 cm. long, rounded-ovate, acute at the apex, rounded or truncate at the base, rarely somewhat cuneate, not decurrent, dark-green and densely pubescent (when young almost velvety) above, white villous and tomentose beneath, usually double-toothed with ovate, mucronate teeth; inflorescence conic or ovate, 5–15 cm. long, 5–10 cm. wide, twice or thrice compound, with divergent villous branches; bracts linear; hypanthium small, saucer-shaped; sepals ovate, acute, nearly 1.5 mm. long, thick; petals oval, white,

over 1.5 mm. long; stamens about 20; filaments about 2 mm. long; pistils and fruit as in the preceding.

Type collected at San Leandro, California, in 1888, *L. M. Underwood* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Hills and mountains of Oregon and California, near the coast, from Columbia River to San Luis Obispo.

3. **Sericotheca pachydisca** Rydberg, sp. nov.

?*Schizonotus argenteus intermedius* Kuntze, Rev. Gen. 1: 225. 1891.

Twigs brown, angled, sparingly villous; petioles 3 mm. long; leaf-blades broadly ovate, 2–3 cm. long, and nearly as broad, coarsely few-toothed with rounded-ovate mucronulate teeth, glabrous above, grayish- or brownish-silky and tomentulose beneath; panicle ovoid, 1–1.5 dm. long and nearly as broad, twice compound; sepals broadly ovate, tomentose without, glabrous within, acute; petals elliptic, 2.5 mm. long; stamens 20, inserted on the margin of a prominent disk; filaments subulate.

Type collected in the Valley of Mexico, at Tacuboya, in 1865 or 1866, *Bourgeau 267* (U. S. Nat. Herb.).

4. **Sericotheca dumosa** (Nutt.) Rydberg.

Spiraea discolor Torr. Ann. Lyc. N. Y. 2: 195. 1827. Not *Spiraea discolor* Pursh, 1814.
Spiraea ariaefolia discolor T. & G. Fl. N. Am. 1: 416. 1840.
Spiraea dumosa Nutt.; T. & G. Fl. N. Am. *loc. cit.*, as a synonym. — Hook. London Jour. Bot. 6: 217. 1847.
Spiraea discolor dumosa S. Wats. Bot. Calif. 1: 170. 1876.
Schizonotus argenteus dumosus Kuntze, Rev. Gen. 226. 1891.
Holodiscus discolor dumosa Dippel, Handb. Laubh. 3: 508. 1893.
Schizonotus dumosus Koehne, Deuts. Dendr. 265. 1893.
Holodiscus dumosus Heller, Cat. N. Am. Pl. 4. 1898.
Holodiscus australis Heller, Bull. Torrey Club 25: 194. 1898.
Schizonotus discolor dumosus Rehder, Cycl. Am. Hort. 1629. 1902.

A shrub, 6–10 dm. high; bark of young twigs light-brown, villous, that of the older branches chestnut or dark-gray, exfoliating; petioles 2–10 mm. long; leaf-blades obovate, 2–5 cm. long, obtuse or acute at the apex, cuneate at the base and decurrent on the petioles, often double-toothed above with broadly rounded-ovate teeth, green and more or less short-hairy above, white and densely villous and tomentose beneath; inflorescence usually twice compound, ovoid or conic, 5–20 cm. long, 5–10 cm. wide, with ascending or spreading villous branches; sepals ovate or lance-ovate, 1.5 mm. long; petals elliptic or oval, about 2 mm. long; stamens about 20; pistils 5; carpels about 1.5 mm. long, their beaks 1 mm. *Holodiscus australis* is the form with thinner, more acutish leaf-blades, and more simple toothing.

TYPE LOCALITY: Stony and sandy places of Platte River.
DISTRIBUTION: Mountains from Wyoming and Utah to New Mexico and Chihuahua.
ILLUSTRATION: Bull. Torrey Club 25: *pl. 338* (as *Holodiscus australis*).

5. **Sericotheca Boursieri** (Carr.) Rydberg.

Spiraea Boursieri Carr. Rev. Hort. 1859: 520. 1859.

A shrub, 1 m. high or less, branched from the base; bark of the young twigs light-brown, densely villous; that of the older branches dark-gray or brown or nearly black, exfoliating; leaves 1–3 cm. long; blades suborbicular or flabelliform, rounded at the apex, abruptly contracted into the short winged petioles, more or less doubly toothed with ovate, mucronate teeth, densely villous on both sides, green above, grayish beneath; inflorescence 5–7 cm. long, simple or with a few short branches below; sepals broadly ovate, acute, fully 2 mm. long; petals oval, a little longer than the sepals; stamens 20, 2 mm. long; pistils 5; carpels about 2 mm. long, their beaks 1 mm.

TYPE LOCALITY: California.
DISTRIBUTION: Mountains of California and adjacent Nevada.
ILLUSTRATION: Rev. Hort. 1859: *f. 108*.

6. **Sericotheca saxicola** (Heller) Rydberg.

Holodiscus saxicola Heller, Muhlenbergia 1: 41. 1904.

A shrub, about 1 m. high, much branched; bark of the young twigs light-brown, villous; that of the older branches brown or gray, exfoliating; leaf-blades broadly oval, ovate

or orbicular, 8–15 mm. long, rounded at the apex, abruptly narrowed into a very short winged petiole, crenate except at the base, bright-green and sparingly pubescent above, grayish-tomentose and slightly villous beneath; inflorescence 3–10 cm. long, simple or with a few short branches below, villous; sepals lance-ovate, acute, 1.5 mm. long; petals almost white, broadly ovate, obtuse, 2 mm. long; stamens about 20, 2 mm. long; pistils 5; carpels about 2 mm. long, their beaks 1 mm. long.

TYPE LOCALITY: Among granite rocks at Donner Pass, Nevada County, California.
DISTRIBUTION: Nevada County, California.

7. **Sericotheca concolor** Rydberg, sp. nov.

Spiraea discolor dumosa S. Wats. Bot. Calif. 1: 170, in part. 1876.
Holodiscus dumosus C. K. Schneid. Handb. Laudb. 1: 497, in part. 1905.

A low shrub, less than 1 m. high, with spreading branches; bark of young twigs light-brownish, villous; that of the older branches dark-brown, exfoliating; petioles obsolete; leaf-blades cuneate-obovate, 5–12 mm. long, toothed above the middle with ovate teeth, rounded at the apex, cuneate at the base, almost equally finely and densely pubescent, almost velvety on both sides; inflorescence 5–8 cm. long, with few short spreading branches; sepals broadly ovate, acutish, a little more than 1 mm. long; petals broadly ovate, about 1.5 mm. long; stamens about 20, of about the same length as the sepals.

Type collected on Mt. Davidson, Nevada in 1865, *J. Torrey 134* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Mountains of northern and western Nevada and adjacent California; apparently the same also from the San Bernardino Mountains in southern California.

8. **Sericotheca microphylla** Rydberg.

Holodiscus microphyllus Rydb. Bull. Torrey Club 31: 559. 1904.
Holodiscus dumosus C. K. Schneid. Handb. Laudb. 1: 497, in part. 1905.

A low diffuse shrub, 3–10 dm. high; bark of the young twigs light-brown or yellowish, soft-villous, that of the stems dark-brown or gray and exfoliating; leaf-blades spatulate-cuneate, 1–1.5 cm., rarely 2 cm. long, evenly serrate above the middle, obtuse at the apex, cuneate at the base and decurrent on the short petioles, finely pubescent and green above, white silky-villous and tomentose beneath; inflorescence small, 3–5 cm. long, its branches few, short and few-flowered, spreading; sepals about 1 mm. long, ovate, villous; petals broadly obovate or oval, a little exceeding the sepals, stamens 20, about 1.5 mm. long.

TYPE LOCALITY: Alta, Wahsatch Mountains, Utah.
DISTRIBUTION: Mountains of Colorado, Wyoming, and Utah; apparently also in California.

9. **Sericotheca Schaffneri** Rydberg, sp. nov.

Spiraea discolor dumosa S. Wats. Proc. Am. Acad. 17: 353. 1882.
?*Schizonotus argenteus griseus* Kuntze, Rev. Gen. 226. 1891.

A low shrub; bark of young twigs dark-brown, finely villous, that of the older branches almost black, exfoliating; petioles 3–5 mm. long; leaf-blades 1–3 cm. long, ovate or rounded-oval, obtuse at the apex, usually somewhat cuneate at the base and slightly decurrent on the petioles, more or less doubly serrate with ovate, mucronate teeth, sparingly pubescent on both sides, only slightly paler (not at all tomentose) and conspicuously glandular-atomiferous beneath; inflorescence ovate, 5–7 cm. long, about 5 cm. wide, branched but branches usually simple, ascending-spreading; sepals ovate, acute, 1.5–1.75 mm. long; petals elliptic or oval, about 2 mm. long; stamens 15–20, about 2 mm. long; pistils 5; carpels semi-obovate, nearly 2 mm. long, with beaks scarcely 1 mm. long.

Type collected at San Luis Potosi, Mexico, in 1879, *W. Schaffner 451* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Northern Mexico and Arizona.

10. **Sericotheca obovata** Rydberg, sp. nov.

A low bush, 1 m. or less high; bark of young twigs light-brown, villous, that of the older branches chestnut-brown or grayish, exfoliating; leaves 1.5–3 cm. long; leaf-blades rounded-obovate or spatulate, rounded at the apex, tapering below and decurrent on the short winged petioles, toothed above the middle with ovate, mucronate, simple teeth, thick, green on both sides, only slightly paler beneath, villous above, conspicuously glandular-

atomiferous between the pubescent veins beneath; inflorescence open, ovoid, 7–10 cm. long, 5–7 cm. wide; branches few, usually ascending and simple, villous; sepals thin, ovate, acute, 1.5 mm. long; petals pale-pink, nearly white, oval, 1.5–2 mm. long; stamens about 20, 2 mm. long; pistils 5; carpels about 2 mm. long, their beaks over 1 mm.

Type collected among rocks in woods along Truckee River, Placer County, California, July 17, 1886, *C. F. Sonne* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Mountains of California, Nevada, and southern Oregon, at an altitude of 2000 m. or more.

11. **Sericotheca glabrescens** (Greenman) Rydberg.

Spiraea dumosa Torr. in Stansb. Expl. Utah 387. 1852. Not *S. dumosa* Nutt. 1847.
Spiraea discolor glabrescens Greenman Erythea 7: 116. 1899.
Holodiscus glabrescens Heller, Muhlenbergia 1: 40. 1904.

A diffuse shrub, 6–12 dm. high; bark of young twigs light-brown, sparingly hairy or glabrous, but conspicuously glandular-atomiferous, that of the older branches dull-brown or almost black; leaf-blades cuneate-obovate, 1–1.5 cm. long, obtuse at the apex, decurrent on the short petioles, evenly toothed above the middle, glabrous or hairy on the veins, glandular-atomiferous and green on both sides; inflorescence more or less compound, 3–6 cm. long; the branches short and more or less spreading; sepals ovate, acute or short-acuminate, 1.5 mm. long; petals white, oval, 2 mm. long; stamens 20, about 2 mm. long; carpels 1.5 mm. long, their beaks 1 mm. long.

TYPE LOCALITY: Stein's Mountain, Oregon.
DISTRIBUTION: Mountains from Oregon and northern California to Utah.
ILLUSTRATION: Stansb. Expl. Utah Bot. *pl. 4* (as *Spiraea dumosa*).

12. **Sericotheca fissa** (Lindl.) Rydberg.

Spiraea fissa Lindl. Bot. Reg. **26**: Misc. 73. 1840; **28**: Misc. 1. 1842.
Spiraea argentea Benth. Pl. Hartw. 82. 1841. Not *S. argentea* L. f. 1781.
Schizonotus argenteus alpestris Kuntze, Rev. Gen. 225. 1891.
Schizonotus argenteus fissus Kuntze, Rev. Gen. 226. 1891.
Holodiscus argenteus bifrons Focke, Bot. Gaz. **18**: 200. 1893.
Schizonotus discolor fissus Rehder, Cycl. Am. Hort. 1627. 1902.

A shrub, 2.5–3.5 m. high with angled branches; bark of the young twigs gray, villous-tomentose; that of the older branches dark-gray or brownish; petioles 5–10 mm. long; leaf-blades thick, oval to lanceolate or oblanceolate, glabrous and dark-green above, white-tomentose beneath, 2–5 cm. long, acute at the apex, cuneate at the base and more or less decurrent, serrate above the middle with lance-triangular, long-mucronate teeth which are directed forward; inflorescence twice to thrice compound, 5–15 cm. long, 1.5–10 cm. wide, with ascending tomentose branches; sepals broadly ovate, acuminate, 2 mm. long; petals rounded-ovate or triangular, fully 2 mm. long; petals broadly oval, 2.5 mm. long; stamens 20, about 1.5 mm. long, inserted on a thick disk; bodies of carpels fully 2 mm. long, slightly curved on the upper edge, grayish hirsute, their beaks almost as long.

TYPE LOCALITY: Mexico.
DISTRIBUTION: Mountains, from Guatemala and Costa Rica to southern Mexico.

13. **Sericotheca velutina** Rydberg, sp. nov.

A tall shrub, 1 m. or more high; bark of young twigs dark-gray and tomentose, that of the old stems dark-gray or purplish, almost black, exfoliating; leaf-blades oval-cuneate or spatulate, acute at the apex, cuneate and decurrent on the short petioles, green and finely velvety above, white-tomentose and villous beneath, 1.5–3 cm. long, serrate above the middle with lanceolate, long-mucronate teeth directed forward; inflorescence narrow, 5–10 cm. long, with a few short spreading branches; sepals broadly ovate, acute, 2 mm. long; petals broadly obovate, nearly 2.5 mm. long; stamens 20, scarcely equaling the sepals; carpels obliquely obovate, that is, the upper edge also curved, although less so than the lower.

Type collected in the Sierra de San Felipe, State of Oaxaca, Mexico, Sept. 25, 1894, *Charles L. Smith 821* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Southern Mexico and Guatemala.

14. **Sericotheca argentea** (L. f.) Rydberg.

Spiraea argentea L. f. Suppl. 261. 1781.
Holodiscus argenteus Maxim. Acta Hort. Petrop. 6 : 254. 1879.
Schizonotus argenteus Kuntze, Rev. Gen. 225. 1891.
Schizonotus argenteus Mutisianus Kuntze, Rev. Gen. 226. 1891.

A tall shrub; bark of the young twigs gray and densely tomentose, strongly angled; that of the old stems dark-gray; leaf-blades oblanceolate, 1–3 cm. long, thick, white-silky on both sides, acute at the apex, cuneate at the base and decurrent on the short petioles; inflorescence compound, ovoid, 4–8 cm. long, with ascending tomentose branches; sepals triangular-ovate, acute, about 1.5 mm. long; petals obovate, about 2 mm. long; stamens 20, shorter than the sepals; carpels obliquely obovate, curved on the upper edge but less so than on the lower, their bodies about 2 mm. long, their beaks 1 mm.

TYPE LOCALITY: New Grenada.
DISTRIBUTION: Mountains of Colombia; also reported from Costa Rica, perhaps doubtful.
ILLUSTRATIONS: H.B.K. Nov. Gen. & Sp. *pl. 562*; Dict. Sci. Nat. *pl. 238*.

DOUBTFUL SPECIES

Spiraea mexicana Schiede; Regel, Ind. Sem. Hort. Petrop. 1857: 58. 1858 (*Schizonotus argenteus mexicanus* Kuntze, Rev. Gen. 225. 1891), was described from specimens in the St. Petersburg botanic garden. It evidently belongs to this genus, but the species cannot be determined, as neither the type nor the original description has been accessible. It may be *S. pachydisca*, *S. Schaffneri*, or some other species intermediate between *S. discolor* and *S. fissa*, judging from remarks made by Maximowicz under *Holodiscus discolor*.

Tribe 6. **ULMARIEAE.** Perennial herbs, with rootstocks, pinnatisect and incised leaves, and ample stipules. Flowers in paniculate often corymbiform cymes. Hypanthium flat. Disk obsolete. Stamens 20–40, of which 10 are shorter; filaments subclavate, attenuate at the base. Pistils 5–15, distinct, opposite the petals, when of the same number; stigma large, capitate. Carpels indehiscent, attenuate or stipitate at the base, coriaceous, 1-seeded. Seeds pendulous, terete, with a single coat; embryo with superior radicle.

13. **FILIPENDULA** (Tourn.) Adans. Fam. Pl. **2**: 295. 1763.

Ulmaria (Tourn.) Hill, Hort. Kew. 213. 1768.
Thecanisia Raf. New Fl. **2**: 38. 1837.

Characters of the tribe.

Type species, *Spiraea Filipendula* L.

Carpels with semicordate bases, laterally attached, leaves interruptedly pinnatifid, *i. e.*, with alternating larger and smaller leaf-segments.
  Carpels spirally twisted, glabrous; leaf-segments few, double-serrate.
    Leaves white-tomentose beneath. 1. *F. Ulmaria*.
    Leaves green and nearly glabrous beneath. 2. *F. denudata*.
  Carpels not twisted, hispid all over; leaf-segments numerous, twice dissected. 3. *F. Filipendula*.
Carpels tapering at the base, attached by the very base; leaves more regularly pinnate or the lateral segments minute.
  Carpels sessile, plump, glabrous; lateral leaf-segments rather large, 3–5 cleft. 4. *F. rubra*.
  Carpels stipitate, very flat, ciliate on the margins; lateral leaf-segments much reduced, or almost none, the terminal one large and palmate.
    Petals about 3 mm. long, distinctly clawed, blades nearly orbicular. 5. *F. kamtschatica*.
    Petals about 6 mm. long, subsessile, elliptic or oval. 6. *F. occidentalis*.

1. **Filipendula Ulmaria** (L.) Maxim. Acta Hort. Petrop. **6**: 251. 1879.

Spiraea Ulmaria L. Sp. Pl. 490. 1753.
Ulmaria Spiraea-Ulmaria Hill, Hort. Kew. 214. 1768.
Ulmaria palustris Moench, Meth. 663. 1794.
Spiraea palustris Salisb. Prodr. 364. 1796.

Spiraea odorata S. F. Gray, Nat. Arr. Brit. Pl. **2**: 589. 1821.
? *Thecanisia discolor* Raf. New Fl. **2**: 39. 1837.
Thecanisia Ulmaria Raf. Sylva Tell. 152. 1838.
Ulmaria Ulmaria Barnh. Bull. Torrey Club **21**: 491. 1894.

Stem angled or grooved, 6–20 dm. high, often purple-tinged and puberulent, branched above; leaves interrupted-pinnatisect, with 3–11 larger divisions and smaller ones interposed, finely puberuleut or glabrate above, white-tomentulose beneath; terminal division 3–5-cleft, double-serrate; the lateral ones ovate, acute, 2–8 cm. long; inflorescence 1–2 dm. long, paniculate-cymose, with the lower branches elongate; sepals 4–6, ovate, about 1.5 mm. long, puberulent; petals white or greenish-white; blades rounded-oval, 2–3 mm. long; achenes about 10, semicordate at the base, slightly laterally affixed, spirally twisted, 3–4 mm. long; seed oval.

TYPE LOCALITY: Wet meadows of Europe.
DISTRIBUTION: Europe and northern Asia; escaped from gardens in eastern North America from the lower St. Lawrence to Massachusetts.
ILLUSTRATIONS: Fl. Dan. *pl. 547;* Engl. Bot. *pl. 960;* Sv. Bot. *pl. 189;* Britt. & Brown, Ill. Fl. *f. 1954.*

2. **Filipendula denudata** (Presl) Rydberg.

Spiraea denudata Presl, Fl. Cech. 101. 1819.
Spiraea Ulmaria denudata Hayne, Arzn. Gew. **8**: sub.*pl. 31.* 1822.
Spiraea Ulmaria concolor Lange, Haandb. Danske Fl. ed. 2. 334. 1859.
Filipendula Ulmaria denudata Maxim. Acta Hort. Petrop. **6**: 252. 1879.

Stem angled and grooved, 5–15 dm. high, glabrous or puberulent above; leaves interruptedly pinnate, with 3–9 principal divisions and often several smaller ones in the interspaces, finely puberulent on both sides or usually glabrate above, green on both sides, strongly veined beneath; terminal division 3–5-cleft, cuneate or truncate at the base, finely double-serrate; lateral divisions ovate or lanceolate, acute or acuminate, 2–6 cm. long; inflorescence 1–2 dm. long, rather irregularly paniculate-cymose; sepals 4–6, ovate, scarcely 1.5 mm. long, puberulent, reflexed; petals white; blades rounded, about 2 mm. long; achenes 6–8, semicordate at the base, slightly laterally affixed, spirally twisted, about 3 mm. long.

TYPE LOCALITY: Wet meadows [Bohemia].
DISTRIBUTION: Native of Europe, Siberia, and Mongolia; cultivated and occasionally escaped; established near Dover, Maine.

3. **Filipendula Filipendula** (L.) Voss, in Vilmorin, Blumenz. ed. 3. **1**: 240. 1896.—Asch. & Graebn. Syn. Mittel. Eur. Fl. **6**: 439. 1902.

Spiraea Filipendula L. Sp. Pl. 490. 1753.
Filipendula hexapetala Gilib. Fl. Lithuan. **2**: 237. 1781.
Filipendula vulgaris Moench, Meth. 663. 1794.
Spiraea tuberosa Salisb. Prodr. 364. 1796.
Ulmaria Filipendula Hill, Hort. Kew. 214. 1768.
Spiraea vulgaris S. F. Gray, Nat. Arr. Brit. Pl. **2**: 588. 1821.

Perennial with a short rootstock; roots thickened, fusiform; stem erect, round, simple or branched above, almost leafless, 3–6 dm. high; leaves mostly basal with more than 40 pairs of larger, lanceolate, pinnatifid segments, which are over 2 cm. long, and between them smaller 3–5-toothed segments; inflorescence flat; sepals and petals mostly 6; the former white, rarely pink or rose, rounded; achenes 10–12, about 3 mm. long, erect, not twisted, hispid all over, terete, laterally attached by the semicordate base; style short, reflexed; stigma capitate.

TYPE LOCALITY: Pastures of Europe.
DISTRIBUTION: Rarely escaped from cultivation in eastern United States; native of Europe and northern Asia.
ILLUSTRATIONS: Fl. Dan. *pl. 635;* Sv. Bot. *pl. 154;* Eng. Bot. *pl. 284;* Baxter, Brit. Bot. **2**: *pl. 133;* Sturm, Deuts. Fl. **5**: *pl. 18;* Cycl. Am. Hort. *f. 2609.*

4. **Filipendula rubra** (Hill) B. L. Robinson, Rhodora 8: 204. 1906.

Ulmaria rubra Hill, Hort. Kew. 214. 1761.
Spiraea lobata Gronov.; Jacq. Hort. Vind. 1: 38. 1770.
Thecanisia lobata Raf. New Fl. **2**: 38. 1837.

Thecanisia purpurea ["*ponpurea*"] Raf. New Fl. 2: 38. 1837.
Thecanisia augustifolia Raf. New Fl. 2: 39. 1837.
Filipendula lobata Maxim. Acta Hort. Petrop. 6: 251. 1879.
Spiraea rubra Britton, Bull. Torrey Club 18: 270. 1891.

Stem 0.5–2 m. high, grooved, tinged with red, glabrous; leaves large, the lower sometimes 1 m. long, pinnately divided into 3–9 segments, dark-green and glabrous above, more or less pubescent beneath; terminal segment reniform in outline, 1–2 dm. wide, 5–9-cleft with lanceolate double-serrate lobes; lateral segments obovate in outline, digitately 3–5-lobed, 5–12 cm. long, the intermediate segments minute; inflorescence flat-topped or ovate; sepals ovate, obtuse; petals pink or purple; blades orbicular, 3–3.5 mm. broad; achenes about 10, lance-oblong, 4–5 mm. long, slightly flattened, straight, tapering at each end, sessile or nearly so, fixed by the base; seeds oblong; style slightly curved; stigma capitate.

TYPE LOCALITY: North America.
DISTRIBUTION: In moist ground from Vermont to Pennsylvania, Iowa, Kentucky, and Georgia.
ILLUSTRATIONS: Hill, Hort. Kew. *pl. 7;* Jacq. Hort. Vind. 1: *pl. 88;* Britt. & Brown, Ill. Fl. *f. 1953.*

5. **Filipendula kamtschatica** (Pall.) Maxim. Acta Hort. Petrop. 6: 248. 1871.

Spiraea kamtschatica Pall. Fl. Ross. 1: 41. 1784.

Stem tall, 1 m. high or more, angled, glabrous below, more or less pubescent above; leaves pinnately divided, but the terminal segment large and the lateral ones minute, glabrous or nearly so above, more or less pubescent beneath; terminal segment cordate or reniform, 1–2 dm. broad, digitately 3–7-cleft with ovate or lanceolate, more or less acuminate and double-serrate lobes; inflorescence flat-topped; petals white; blades orbicular or nearly so, 2–2.5 mm. long; achenes about 5 in number, 6–7 mm. long, distinctly stipitate at the base, lance-linear, very flat, ciliate on the sutures, otherwise glabrous; seed oblong; styles slender, almost straight; stigma capitate.

TYPE LOCALITY: Kamchatka.
DISTRIBUTION: Kamchatka, Sachalin, Manchuria, Japan, and the western Aleutian Islands.
ILLUSTRATION: Pall. Fl. Ross. 1: *pl. 28.*

6. **Filipendula occidentalis** (S. Wats.) Howell, Fl. NW. Am. 1: 185. 1898.

Spiraea occidentalis S. Wats. Proc. Am. Acad. 18: 192. 1883.

Stem 1–2 m. high, simple, nearly terete, straw-colored, glabrous below, pubescent above; leaves pinnately divided, with a large terminal division and small lateral ones, more or less hairy on both sides, especially on the veins; terminal segment cordate or reniform, 1–1.5 dm. broad, digitately 3–7-cleft with ovate, acute, double-serrate lobes; lateral segments 1–2 pairs, ovate to lanceolate, 5–10 mm. long, toothed; inflorescence flat-topped; sepals lanceolate, 2 mm. long, acute; petals elliptic or oval, almost clawless, white, about 6 mm. long; achenes long-stipitate, the stipes almost equaling the bodies, the latter linear-lanceolate, ciliate on the margins and more or less hairy on the sides; styles slender, straight.

TYPE LOCALITY: Rocky banks of the Trask River, Tillamoak County, Oregon.
DISTRIBUTION: Western Oregon.

Tribe 7. **POTENTILLEAE.** Mostly perennial herbs, with scaly rootstock or caudex, a few annuals or biennials, only the genus *Dasiphora* shrubby and *Sibbaldiopsis* suffruticose. Leaves pinnate or digitate, with persistent stipules. Inflorescence mostly cymose, but in *Dasiphora*, *Argentina*, *Duchesnea* and a few species of *Potentilla*, the flowers are solitary and axillary. Hypanthium from flat and poorly developed, almost obsolete, to deeply campanulate. Disk usually poorly developed. Sepals subtended by a set of bractlets of the same number, except in *Chamaerhodos* and *Purpusia*. Pistils from one to many; ovules solitary, inserted at the distal end of the ovary. Fruit achenes; seeds

from pendulous and anatropous in genera with terminal style to ascending and orthotropous in genera with basal styles.

A. Style terminal or nearly so ; ovules pendulous and anatropous.
Anthers oblong, opening by longitudinal slits ; pistils two to many.
Stamens separated from the receptacle by an open space ; no indication of an annular thickening at the base of the filaments.
Hypanthium saucer-shaped to deeply campanulate ; petals oblanceolate to obcordate or cuneate ; pistils usually more than 2.
Filaments dilated, petaloid.
Stamens 10 ; sepals not reflexed in anthesis. 14. HORKELIA.
Stamens 20.
Pistils numerous ; hypanthium campanulate; sepals reflexed in anthesis. 15. HORKELIELLA.
Pistils 3–6 ; hypanthium turbinate ; sepals not reflexed in anthesis. (One species, *I. argyrocoma*, in) 16. IVESIA.
Filaments filiform.
Pistils inserted in the bottom of the hypanthium ; bractlets present. 16. IVESIA. p.283
Pistils inserted on a stalked receptacle ; bractlets lacking. 17. PURPUSIA. p.291.
Hypanthium wheel-shaped ; petals narrowly linear ; pistils 2. 18. COMARELLA.
Stamens inserted very near the base of the receptacle on a more or less evident annular thickening. 20. POTENTILLA.
Anthers obcordate, opening by subterminal pores ; pistil 1. 19. STELLARIOPSIS.
B. Style lateral ; ovules ascending and amphitropous.
Achenes glabrous ; herbs.
Achenes numerous ; stamens about 20.
Leaves odd-pinnate.
Receptacle not enlarged in fruit ; petals yellow, obtuse or retuse ; leaves interruptedly pinnate. 21. ARGENTINA.
Receptacle somewhat enlarged in fruit, becoming spongy ; petals red, acute or acuminate ; leaves regularly pinnate. 22. COMARUM.
Leaves trifoliolate ; receptacle much enlarged and usually red in fruit.
Receptacle not pulpy ; petals yellow. 23. DUCHESNEA.
Receptacle pulpy ; petals white or pinkish. 24. FRAGARIA.
Achenes 10–15 ; stamens 5 ; leaves trifoliolate. 25. SIBBALDIA.
Achenes hairy ; shrubs or undershrubs.
Style filiform ; leaves trifoliolate ; petals white. 26. SIBBALDIOPSIS.
Style club-shaped ; leaves pinnate ; petals (in ours) yellow. 27. DASIPHORA.
C. Style nearly basal ; ovules ascending or nearly erect, orthotropous.
Stamens and pistils numerous ; bractlets present ; leaves pinnate. 28. DRYMOCALLIS.
Stamens 5 ; bractlets wanting ; leaves twice or thrice ternate. 29. CHAMAERHODOS.

14. HORKELIA Cham. & Schlecht. Linnaea 2 : 26. 1827.

Perennial herbs with scaly rootstocks or caudices. Leaves pinnately compound, usually with many leaflets. Inflorescence cymose-paniculate. Hypanthium deeply campanulate to saucer-shaped. Bractlets, sepals and petals 5. Petals of variable form, strap-shaped, oblanceolate, obovate, cuneate or obcordate, often unguiculate, white or light-yellow. Stamens 10, inserted in the throat of the hypanthium and therefore separated from the receptacle by a wide open space; filaments dilated and more or less petaloid, persistent, triangular, lanceolate or subulate, with a distinct midrib. Receptacle generally conic or hemispheric with numerous pistils, in a few species small, with 3–15 pistils. Styles long and slender, almost filiform, but generally slightly thickened and somewhat glandular below, articulated to the achene and at last deciduous. Ovule and seed inserted near the base of the style, pendulous and anatropous.

Type species, *Horkelia californica* Cham. & Schlecht.

Lower stipules not dissected into linear-filiform segments.
Cyme very leafy; hypanthium campanulate; bractlets ovate, much exceeding the sepals and petals. I. CALIFORNICAE.
Cyme less leafy ; hypanthium cupulate or saucer-shaped ; bractlets not exceeding the sepals.
Leaves with 4–15 pairs of toothed or dissected leaflets.
Bractlets ovate or lanceolate ; leaflets cuneate, toothed or divided, not densely imbricated ; inflorescence truly cymose ; filaments not very unequal in shape. II. CUNEATAE.
Bractlets linear.
Leaflets not densely crowded, nor imbricate ; inflorescence dense, subcapitate or fastigiate.
Petals oblong, rounded at the apex ; filaments not very unequal in shape. III. TENUILOBAE.

Petals cuneate, truncate or emarginate; outer stamens much broader than the inner. IV. CAPITATAE.
Leaflets densely crowded and imbricate; inflorescence open, cymose. V. SERICATAE.
Leaves of 2–4 pairs of leaflets, which are 2–3- (seldom 5-) toothed only at the apex or entire. VI. TRIDENTATAE.
Lower stipules dissected into linear-filiform hairy segments. VII. HIRSUTAE.

I. CALIFORNICAE.

Bractlets usually 3-toothed; stem stout.
Basal leaves with 3–4 pairs of leaflets; fruiting calyx 5–6 mm. in diameter. 1. *H. frondosa.*
Basal leaves with 4–10 pairs of leaflets; fruiting calyx about 1 cm. in diameter. 2. *H. californica.*
Bractlets usually entire.
Stem slender; basal leaves with 15–25 leaflets. 3. *H. elata.*
Stem stout; basal leaves with about 11 leaflets. 4. *H. glandulosa.*

II. CUNEATAE.

Leaflets flabelliform, dissected.
Hypanthium and calyx 5–6 mm. long; sepals lanceolate. 5. *H. Micheneri.*
Hypanthium and calyx about 3 mm. long; sepals ovate. 6. *H. Wilderae.*
Leaflets merely toothed.
Pubescence dense, silky, not at all glandular, except slightly so on the branches of the inflorescence and the hypanthium in *H. Clevelandi.*
Plant densely canescent. 7. *H. Rydbergii.*
Plant green or greenish.
Pubescence very short and dense.
Plant stout, 3–6 dm. high; leaflets thick, obovate, 10–25 mm. long. 8. *H. Kelloggii.*
Plant slender, 2–4 dm. high; leaflets obovate-cuneate to reniform, 5–10 mm. long. 9. *H. Clevelandi.*
Pubescence longer and less dense; plants 2–4 dm. high.
Pubescence appressed; hypanthium cupulate. 10. *H. bernardina.*
Pubescence spreading; hypanthium nearly saucer-shaped. 11. *H. Bolanderi.*
Pubescence more or less hirsute and glandular.
Plants usually over 3 dm. high; petals spatulate or oblong.
Flowers 15–20 mm. in diameter; hypanthium saucer-shaped; pedicels often 2.5 cm. long.
Leaflets acute, regularly and coarsely toothed. 12. *H. platycalyx.*
Leaflets truncate, finely toothed and with usually 3 large teeth at the apex. 13. *H. truncata.*
Flowers about 10 mm. in diameter; hypanthium cupulate; pedicels 0.5–1.5 cm. long. 14. *H. puberula.*
Plants usually less than 3 dm. high.
Hypanthium cupulate; petals spatulate-oblong. 15. *H. cuneata.*
Hypanthium saucer-shaped; petals broadly obovate. 16. *H. Parryi.*

III. TENUILOBAE.

Leaflets thick, densely pubescent, cleft about half their length or less; plant 1–2 dm. high. 17. *H. Hendersonii.*
Leaflets thin, sparingly hairy, cleft into linear lobes to near the base; plant 3–4 dm. high. 18. *H. tenuiloba.*

IV. CAPITATAE.

Plant less than 3 dm. high; petals 2–3 mm. long.
Leaflets cleft with lanceolate or oblong divisions; inflorescence open.
Leaves densely hairy. 19. *H. Brownii.*
Leaves sparingly hairy or glabrate. 20. *H. tenella.*
Leaflets obovate, toothed with rounded teeth, densely glandular-puberulent; inflorescence dense. 21. *H. parviflora.*
Plant usually over 3 dm. high; petals 3–6 mm. long.
Leaflets merely toothed.
Pubescence of both leaves and stem more or less villous. 22. *H. pseudocapitata.*
Pubescence rather scant, on the leaves scarcely any, on the upper part of the stem glandular.
Leaflets ovate or oval, 2–3 cm. long; bracts generally exceeding the inflorescence. 23. *H. capitata.*
Leaflets obovate or cuneate, usually less than 2 cm. long; bracts shorter than the inflorescence. 24. *H. fusca.*
Leaflets divided more than halfway to the midrib into linear or linear-oblong divisions. 25. *H. tenuisecta.*

V. SERICATAE.

Plant silvery with long appressed hairs. 26. *H. sericata.*
Plant hispidulous and glandular-puberulent. 27. *H. hispidula.*

VI. TRIDENTATAE.

Petals white, oblanceolate; filaments linear-lanceolate; cymes rather fastigiate.
- Petioles and stem with spreading hairs; leaflets toothed at the apex. 28. *H. tridentata.*
- Petioles and stem appressed-silky; leaflets entire. 29. *H. integrifolia.*

Petals yellow, at least in drying.
- Cymes subcapitate; outer filaments triangular to lanceolate. 30. *H. flavescens.*
- Cymes few-flowered and open; filaments linear-lanceolate. 31. *H. congesta.*

VII. HIRSUTAE.

Cyme fastigiately corymbose.
- Leaflets oblong-cuneate, 2–5-toothed or cleft at the apex.
  - Plant silky.
    - Leaflets about 4 pairs, toothed at the apex. 31. *H. congesta.*
    - Leaflets 6–8 pairs, cleft with lanceolate divisions. 32. *H. pulchra.*
  - Plant hirsute; leaflets 4–10 pairs. 33. *H. hirsuta.*
- Leaflets divided to near the base into linear segments.
  - Stem more or less glandular; segments linear, acute, 1–2 mm. wide. 34. *H. daucifolia.*
  - Stem silky-villous, not glandular; segments narrowly linear, less than 1 mm. wide. 35. *H. caruifolia.*

Cyme open and lax.
- Leaflets cuneate, cleft at the apex half their length into oblong-acute segments. 36. *H. laxiflora.*
- Leaflets divided to the base into oblong or oval segments. 37. *H. Howellii.*

I. **Californicae.** Stout, glandular, leafy plants, with comparatively large leaflets. Flowers in a leafy cyme. Hypanthium deeply campanulate; bractlets ovate, much exceeding the sepals and petals. Petals narrow, strap-shaped, white. Stamens with rather long anthers and short, oblong, comparatively narrow filaments.

1. **Horkelia frondosa** (Greene) Rydb. Bull. Torrey Club 25: 54. 1898.

Potentilla frondosa Greene, Pittonia 1: 300. 1889.

Perennial; stem stout, erect or decumbent, 0.5–1 m. high, densely glandular-hirsute and heavy-scented, leafy throughout; stipules ovate, about 1.5 cm. long; leaves pinnate, the lower with 3–4, the upper with 1–3 pairs of leaflets, more or less glandular-villous; leaflets ovate to oblong, 3–5 cm. long, doubly serrate, with mostly rounded teeth, the upper generally more or less confluent; cyme spreading and leafy; pedicels very short, 1–3 mm. long, seldom longer; hypanthium campanulate, in fruit 5–6 mm. in diameter, more or less tinged with brown; bractlets ovate, 3–5 mm. long, generally 3-toothed at the apex, spreading, a little exceeding the triangular-lanceolate sepals, which are erect in fruit; petals white, oblong, a little shorter than the sepals; stamens with flat oblong filaments and oblong anthers.

TYPE LOCALITY: Martinez, Contra Costa County, California.
DISTRIBUTION: Central California, near the coast.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 56.*

2. **Horkelia californica** Cham. & Schlecht. Linnaea 2: 26. 1827.

Sibbaldia californica Spreng. Syst. 4²: 341. 1827.
Horkelia grandis H. & A. Bot. Beech. Voy. 339. 1838.
Potentilla californica Greene, Pittonia 1: 100. 1887.
Potentilla californica carmeliana Jepson, Fl. W. Middle Calif. 282. 1901.

Root perennial; stems stout, 0.5–1 m. high, densely glandular and very fragrant, as well as the foliage, leafy; basal leaves numerous, long-petioled, pinnate; leaflets 5–10 pairs; stem-leaves smaller, the leaflets more crowded, all densely glandular-hirsute; leaflets 2–5 cm. long, broadly obovate or orbicular in outline, toothed and incised, sometimes 3–5-cleft with mostly acute teeth, the upper often confluent; inflorescence open, cymose-dichotomous; pedicels short, 2–5 mm. long; hypanthium campanulate, in fruit about 1 cm. in diameter, densely glandular and veined, often purple-tinged; bractlets 5–10 mm. long, ribbed, ovate and generally 3-toothed at the apex, the middle tooth the longest, somewhat exceeding the ovate, acute sepals; bractlets and sepals generally erect in fruit; petals white, strap-shaped, oblong, much shorter than the sepals; stamens 10, with oblong filaments and anthers; stipules about 1 cm. long, ovate, generally more or less toothed.

TYPE LOCALITY: San Francisco, California.
DISTRIBUTION: Central California, near the coast.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 57.*

3. **Horkelia elata** (Greene) Rydb. Bull. Torrey Club **25**: 54. 1898.

Potentilla elata Greene, Pittonia 1: 100. 1887.
Potentilla californica elata Greene, Fl. Fran. 1: 66. 1891.

Stems rather numerous from a perennial root, quite slender, 0.5–1 m. high, softly but sparingly glandular-villous; stipules ovate-lanceolate, about 1 cm. long; basal leaves numerous, slender-petioled, pinnate; leaflets 7–11 pairs, thin and softly hairy, obovate or broadly cuneate-flabelliform, repeatedly cleft and incised into very narrow segments, the upper confluent; stem-leaves similar, but smaller, and with fewer leaflets; cyme open; pedicels short, 2–6 mm. long; hypanthium campanulate, softly hairy and glandular, in fruit 5–8 mm. in diameter; bractlets and sepals triangular-lanceolate, mostly entire, the former 3–8 mm. long, usually exceeding the sepals; petals white, oblong, about equaling the sepals.

TYPE LOCALITY: Shady banks of the upper Napa River, a little above Calistoga [California],
DISTRIBUTION: Western slope of the Sierra Nevada.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 58*.

4. **Horkelia glandulosa** Eastw. Bull. Torrey Club **32**: 195. 1905.

Perennial, with a woody rootstock; stems several, 6 dm. high, stout and coarse, finely viscid-glandular throughout and softly villous with silky hairs; basal leaves often 4 dm. long, with about 5 pairs of leaflets; leaflets elliptic to orbicular in outline, cuneate at the base, laciniately lobed and toothed, the larger 4 cm. long; cauline leaves smaller; stipules resembling the leaflets but smaller; cymes terminal or axillary; central flower pedicelled, the lateral ones subsessile; hypanthium urceolate, 5 mm. long; sepals 5 mm. long and 3 mm. wide, glandular-hairy without, attenuate; bractlets similar but narrower; petals white, oblong, 6 mm. long, 4 mm. wide; filaments broad, as long as the anthers.

TYPE LOCALITY: Laytonville, Mendocino Co., California.
DISTRIBUTION: Known only from the type locality.

II. **Cuneatae.** Stem less leafy than in the preceding group. Basal leaves pinnate, with 4–15 pairs of rather small obovate or cuneate leaflets, which are in all but one species less than 2 cm. long. Inflorescence rather openly cymose, several- or many-flowered. Hypanthium cupulate or saucer-shaped; bractlets ovate or lanceolate, not exceeding the sepals. Stamens with broad uniform filaments. Pistils many.

5. **Horkelia Micheneri** (Greene) Rydb. Bull. Torrey Club **25**: 54. 1898.

Potentilla Micheneri Greene, Erythea 1: 5. 1893.
Potentilla tenuiloba Micheneri Jepson, Fl. W. Middle Calif. 283. 1901.

Stems several from a deep perennial root, slightly hirsute, brown, simple or branched below, ascending or erect; stipules lanceolate, mostly entire, 5–10 mm. long; basal leaves numerous, slightly pubescent or glabrate, dark-green, pinnate, with 10–16 pairs of cuneate leaflets which are about 1 cm. long, flabelliform, dissected from the end to the middle into 2–4 segments, these again divided into rather divergent, oblong, obtuse lobes; stem-leaves similar, but smaller and with fewer leaflets; cyme open, with divergent branches; hypanthium hirsute, cupulate, in fruit 4–5 mm. in diameter; bractlets linear-lanceolate, much smaller than the broadly lanceolate sepals, which are 3–4 mm long; petals yellowish or white, spatulate, a little exceeding the sepals, more or less deeply notched at the apex.

TYPE LOCALITY: Southern flanks of Mt. Tamalpais, California.
DISTRIBUTION: Mt. Tamalpais.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 59*.

6. **Horkelia Wilderae** Parish, Bot. Gaz. **38**: 460. 1904.

Cespitose, sparsely pubescent perennial, from a perpendicular root; stem slender, 2 dm. high, much branched above; stipules lanceolate, entire or 1–2-toothed at the base; basal leaves 6–8 cm. long; leaflets 5 or 6 pairs, cuneate, 5 mm. long, deeply incised, the lobes oblong; upper cauline leaves unifoliolate, deeply dissected; cyme diffuse; flowers numerous

on slender pedicels, 3–8 mm. long; hypanthium glabrate, saucer-shaped, about 2 mm. in diameter; bractlets linear-oblong, obtuse or acutish, 1 mm. long; sepals lanceolate, 2 mm. long; petals obovate, white, about equaling the sepals; achenes few.

TYPE LOCALITY: Along trail leading from Barton Flat to South Fork of Santa Ana River, San Bernadino Mountains, California.
DISTRIBUTION: Known only from the type locality.

7. **Horkelia Rydbergii** Elmer, Bot. Gaz. **39**: 50. 1905.

Low prostrate perennial forming dense mats; stems decumbent, 1–2 dm. long, densely canescent; stipules lanceolate, entire, about 15 mm. long; basal leaves numerous, clustered at the base, 4–6 cm. long, densely canescent with short silky hairs; leaflets 8–12 pairs, about 5 mm. long, sessile, broadly cuneate, 3–7-toothed; stem-leaves smaller and with fewer leaflets; inflorescence loosely cymose; pedicels usually short; hypanthium canescent, cupulate, 5 mm. broad in fruit; bractlets 2 mm. long, lanceolate; sepals lanceolate, 3 mm. long, acute; petals cuneate, oblong or obovate, 3–4 mm. long; achenes 1 mm. long, brown.

TYPE LOCALITY: Dry gravelly flat near Griffin's Postoffice, Ventura County, California.
DISTRIBUTION: Known only from the type locality.

8. **Horkelia Kelloggii** Greene, Bull. Calif. Acad. **2**: 416. May, 1887.

Horkelia californica sericea A. Gray, Proc. Am. Acad. 6: 529. 1865.
Potentilla Kelloggii Greene, Pittonia 1: 101. 1887. Nov.
Potentilla californica sericea K. Brand. Zoe 2: 349. 1892.
Horkelia sericea Rydb. Bull. Torrey Club **25**: 56. 1898.

Perennial, with a rootstock and short woody caudex; stem stout, 3–6 dm. high, ascending, or rarely nearly prostrate, silky-pubescent, not glandular; stipules ovate or lanceolate, 1–2 cm. long, often toothed; basal leaves numerous, rather short-petioled, pinnate; leaflets 4–7 pairs, rather thick and with prominent veins, densely and finely silky-pubescent, obovate, 1–2.5 cm. long, coarsely toothed, the upper confluent; stem-leaves similar but smaller, with 2–5 pairs of leaflets; cyme rather dense; hypanthium densely silky-canescent, cupulate, about twice as wide as deep; bractlets and sepals entire, ovate or lance-ovate, of nearly the same length, 5–6 mm. long, acute; petals white, spatulate, 5–6 mm. long, rounded at the apex.

TYPE LOCALITY: Oakland, near San Francisco, California.
DISTRIBUTION: Central and southern California, near the coast.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 60*.

9. **Horkelia Clevelandi** (Greene) Rydb. Bull. Torrey Club **25**: 54. 1898.

Potentilla Clevelandi Greene, Pittonia 1: 102. 1887.

Perennial, with a scaly rootstock and short caudex; stems several, simple, 2–4 dm. high, finely pubescent, very rarely a little glandular above, often reddish-tinged; stipules ovate, 5–8 mm. long, often toothed; basal leaves numerous, short-petioled; leaflets 7–11 pairs, densely and finely pubescent, not at all glandular, obovate-cuneate to nearly reniform, deeply crenate-toothed at the apex, entire at the base, 5–10 mm. long; stem-leaves smaller, with fewer cuneate or oblong leaflets; cyme with rather short erect or spreading branches; hypanthium finely pubescent, little if at all glandular, cupulate with the depth about one-half the width; bractlets ovate, a little shorter than the ovate-lanceolate acute sepals, which are about 4 mm. long; petals spatulate-oblong, a little exceeding the sepals, truncate or rounded at the apex.

TYPE LOCALITY: Laguna, in the mountains back of San Diego, California.
DISTRIBUTION: Southern California and northern Lower California.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 61*.

10. **Horkelia bernardina** Rydberg.

Horkelia Bolanderi Parryi S. Wats. Bot. Calif. 1: 182. 1876.
Horkelia Parryi Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 129. 1898. Not *H. Parryi* Greene, 1887.

Perennial, with a scaly rootstock and a short woody branched caudex; stems numerous, simple, 2–4 dm. high, grayish-strigose, not at all glandular; stipules ovate to ovate-lanceo-

late, acute, mostly entire; basal leaves numerous, densely appressed-silky-canescent, pinnate; leaflets 6–11 pairs, cuneate, entire at the base, coarsely toothed above, 5–10 mm. long; stem-leaves smaller and with narrower leaflets; cyme rather closely-flowered, with short branches; hypanthium densely appressed-hoary or strigose-canescent, cupulate, about half as deep as wide; bractlets and sepals broadly lanceolate, the former generally somewhat smaller, the latter 4 mm. long, acuminate; petals broadly spatulate or cuneate, a little exceeding the sepals, truncate or usually more or less emarginate.

TYPE LOCALITY: Mountains above San Bernardino, California.
DISTRIBUTION: Southern California, near the coast.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 62*.

11. **Horkelia Bolanderi** A. Gray, Proc. Am. Acad. **7**: 338. 1868.

Potentilla Bolanderi Greene, Pittonia 1: 103. 1887.
Horkelia Bolanderi marinensis Elmer, Bot. Gaz. **41**: 321. 1906.

Perennial, with a scaly rootstock and a rather slender caudex, much branched and somewhat tufted; stems several, in the original specimens less than 1 dm. high and nearly scapose, in later specimens 2–3 dm. high and more leafy, slender, finely villous; stipules lanceolate, 5 mm. long, mostly entire; basal leaves pinnate; leaflets 6–11 pairs, loosely and densely villous or hoary-canescent, cuneate, about 5 mm. long, entire at the base, coarsely 3–5-toothed at the apex; cyme in the original specimens dense, subcapitate, in later ones more open; hypanthium densely villous or hoary, about 4 mm. in diameter in fruit, saucer-shaped, about a third as deep as wide; bractlets linear-lanceolate, generally much shorter than the broadly lanceolate sepals, which are about 5 mm. long; petals oblong-spatulate, apparently cream-colored, about a third longer than the sepals, rounded at the apex.

TYPE LOCALITY: Near Clear Lake, California.
DISTRIBUTION: Central California.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 63*.

12. **Horkelia platycalyx** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 131. 1898.

Horkelia capitata Torr. Pacif. R. R. Rep. **4**: 84. 1857.

Perennial, with a scaly rootstock and short caudex; stem stout, 5–10 dm. high, glandular-pubescent, leafy, often tinged with red; stipules ovate, 1–2 cm. long, often toothed; basal leaves several, more or less glandular-puberulent; leaflets 5–7 pairs, obovate, crenate, 1–2 cm. long; stem-leaves similar but with fewer leaflets; cyme open and branched; pedicels rather long, often 2.5 cm.; flowers 15–20 mm. in diameter; hypanthium glandular-pubescent, saucer-shaped, a fourth to a third as deep as wide; bractlets ovate, a little smaller than the ovate-triangular sepals which are 5–6 mm. long; petals oblong or spatulate, exceeding the sepals by about a third; rounded at the apex.

TYPE LOCALITY: Santa Barbara, California.
DISTRIBUTION: Southern California.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 64*.

13. **Horkelia truncata** Rydberg, sp. nov.

Horkelia californica paucifoliolata S. Wats. in herb. (Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 131, as a synonym under *H. platycalyx*. 1898).

Perennial, with a short rootstock and caudex; stem 2–5 dm. high, glandular-pubescent, leafy, green; lower stipules linear-lanceolate, more or less cleft, 1–2 cm. long, the upper lanceolate and entire; basal leaves several, glandular-puberulent and hirsute on the veins; leaflets 2–4 pairs, obovate-cuneate, truncate at the apex with usually 3 large teeth of which the middle one is shorter, otherwise finely crenate, 1–4 cm. long; inflorescence open, but few-flowered; hypanthium saucer-shaped, 7–8 mm. wide and half as deep; bractlets lance-ovate, 4–5 mm. long, a little shorter than the ovate acuminate sepals; petals broadly obovate, 5–6 mm. long; outer filaments triangular, much broader than the inner.

Type collected in Brandegee's garden at San Diego, cultivated plant brought from Ramona, California, *Harley P. Chandler 5321* (herb. Univ. of Calif.).
DISTRIBUTION: Southern California and northern Lower California.

14. **Horkelia puberula** (Greene) Rydb. Bull. Torrey Club 25 : 55. 1898.

Potentilla puberula Greene, Pittonia 1 : 102. 1887.

Perennial, with a scaly rootstock and a short woody caudex; stems mostly several, 3–6 dm. high, branched, finely glandular-puberulent, leafy; stipules obovate, often toothed; basal leaves numerous, puberulent or glabrate; leaflets 5–8 pairs, obovate or cuneate-oblong, 1–2.5 cm. long, coarsely and deeply toothed; stem-leaves similar but smaller and with fewer leaflets; cyme open, branched, with rather spreading branches; pedicels 5–15 mm. long; flowers about 10 mm. wide; hypanthium glandular-puberulent, cupulate, about half as deep as wide, in fruit about 8 mm. in diameter; bractlets broadly lanceolate, shorter than the ovate-lanceolate sepals, which are 5–6 mm. long, acuminate; petals oblong-spatulate, a little exceeding the sepals, rounded at the apex.

TYPE LOCALITY : Mesas, five miles west of San Bernardino, California.
DISTRIBUTION : Southern California.
ILLUSTRATION : Mem. Dep. Bot. Columbia Univ. **2** : *pl. 65.*

15. **Horkelia cuneata** Lindl. Bot. Reg. **23** : sub *pl. 1997.* 1837.

Horkelia Douglasiana Nutt.; H. & A. Bot. Beech. Voy. 338, as synonym. 1838.
Horkelia californica cuneata A. Gray, Proc. Am. Acad. **6** : 529. 1865.
Potentilla Lindleyi Greene, Pittonia **1** : 101. 1887.
Potentilla multijuga Greene, Fl. Fran. **1** : 66. 1891. Not *P. multijuga* Lehm.

Perennial, with a short woody caudex; stems several, rather slender, 1.5–3 dm. high, few-leaved, villous and glandular, especially on the upper part, sometimes nearly glabrous; stipules lanceolate or ovate, 5–10 mm. long, mostly entire; basal leaves rather short-petioled, villous or hirsute-puberulent, or nearly glabrous, pinnate; leaflets 8–12 pairs, cuneate to obovate, entire at the base, deeply toothed above, about 1 cm. long; stem-leaves few and small; cyme rather dense and few-flowered; hypanthium villous-glandular, in fruit 5–8 mm. in diameter, cupulate, about half as deep as wide; bractlets ovate-lanceolate, a little smaller than the similar sepals, which are 5–6 mm. long, acuminate; petals oblong-spatulate, exceeding the sepals by about a third, rounded at the apex.

TYPE LOCALITY : California.
DISTRIBUTION : California, near the coast from Monterey to San Luis Obispo.
ILLUSTRATION : Mem. Dep. Bot. Columbia Univ. **2** : *pl. 66.*

16. **Horkelia Parryi** Greene, Bull. Calif. Acad. **2** : 416. 1887.

Potentilla Parryi Greene, Pittonia **1** : 102. 1887.
Horkelia platypetala Rydb. Bull. Torrey Club **25** : 55. 1898.

Perennial, with a scaly horizontal rootstock and a cespitose caudex; stems several, slender, 1–2 dm. high, branched, glandular-puberulent; stipules ovate, often pectinately toothed, 5–8 mm. long; basal leaves very numerous, somewhat villous-puberulent; leaflets obovate-cuneate, 5–10 mm. long, deeply incised; stem-leaves few and small, with 1–3 pairs of leaflets; cyme open with slender branches; pedicels in fruit about 1.5 cm. long, recurved; hypanthium saucer-shaped, about a third as deep as wide, in fruit about 7 mm. in diameter; bractlets lanceolate, much smaller than the ovate-lanceolate sepals, which are about 5 mm. long; petals white, obovate- to broadly cuneate-oblong, about half longer than the sepals, rounded at the apex.

TYPE LOCALITY : Ione, Amador County, California.
DISTRIBUTION : Amador County, California.
ILLUSTRATION : Mem. Dep. Bot. Columbia Univ. **2** : *pl. 67, f. 1–5* (as *H. platypetala*).

III. **Tenuilobae.** Stem leafy at the base. Leaves pinnate, with many cleft or dissected small leaflets, obovate or cuneate in outline. Inflorescence a dense cyme. Hypanthium campanulate; bractlets linear, shorter than the sepals. Petals oblong, rounded at the apex. Filaments rather narrow, uniform or nearly so.

17. **Horkelia Hendersonii** Howell, Pacif. Coast Pl. Coll. **1887**: [2]. 1887.

Perennial, with a cespitose, thick, woody caudex; stems about 1 dm. high, hirsute-villous, tinged with red or purple, simple and few-leaved; stipules lanceolate, mostly entire; basal leaves numerous; leaflets 5–8 rather crowded pairs, densely canescent-hirsute, in age often ferruginous; cyme dense; hypanthium cup-shaped, hirsute, more or less purplish, about 4 mm. in diameter; bractlets linear-filiform, shorter than the lanceolate sepals, which are about 4 mm. long; petals oblong-linear, generally shorter than the sepals, obtuse.

TYPE LOCALITY: [Not given in the original, but supplied in Howell's Flora of Northwest America.] Top of Ashland Butte, Siskiyou Mountains, Oregon.
DISTRIBUTION: Siskiyou Mountains in southern Oregon.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 67, f. 6–10.*

18. **Horkelia tenuiloba** (Torr.) A. Gray, Proc. Am. Acad. **6**: 529. 1865.

Horkelia fusca tenuiloba Torr. Pacif. R. R. Rep. **4**: 84. 1857.
Potentilla tenuiloba Greene, Pittonia **1**: 105. 1887. not Jordan, 1852.
Potentilla stenoloba Greene, Erythea **3**: 36. 1895.

Perennial, with a horizontal rootstock and short woody caudex; stems 1–2 dm. high, more or less tinged with brown, hirsute-villous, not at all glandular, mostly simple; stipules ovate-lanceolate, often pectinately toothed; basal leaves numerous, pinnate, more or less grayish-hirsute; leaflets 6–10 pairs, about 1 cm. long, divided almost to the base into linear segments; stem-leaves similar but smaller; cyme dense, often nearly subcapitate; hypanthium cupulate, about 5 mm. in diameter, hirsute; bractlets linear-filiform, much smaller than the broadly lanceolate sepals which are about 4 mm. long; petals oblong, very little exceeding the sepals, rounded at the apex.

TYPE LOCALITY: Laguna of Santa Rosa Creek, California.
DISTRIBUTION: Coast range of California.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 73.*

IV. **Capitatae.** In general habit resembling the group *Cuneatae*, but the inflorescence more contracted, fastigiately corymbose-cymose or subcapitate. Hypanthium deeply cup-shaped; bractlets linear. Filaments of the outer stamens much broader than those of the inner ones, broadly triangular. Pistils numerous. Petals obcordate, unguiculate, white or often tinged with rose.

19. **Horkelia Brownii** Rydberg, sp. nov.

Perennial, with a short caudex; stems several, about 3 dm. high, branched, more or less villous with short hairs and glandular; stipules lanceolate, toothed; basal leaves 5–10 cm. long, with 7–9 pairs of leaflets, which are cuneate, 5–12 mm. long, densely short-villous and cleft or incised at the end, with lanceolate or oblong teeth; stem-leaves smaller, with 2–3 pairs of narrower leaflets; cyme rather open; hypanthium cupulate, in fruit 3 mm. high, glandular-villous; bractlets linear, 1 mm., or in fruit 2 mm. long; sepals lanceolate, acute, 1.5 mm., in fruit 3 mm. long; petals white, broadly cuneate, about 2 mm. long; filaments broadly subulate.

Type collected on the south side of Mt. Shasta, Siskiyou County, California, in 1897, *H. E. Brown 530* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Type locality and vicinity.

20. **Horkelia tenella** (S. Wats.) Rydb. Bull. Torrey Club **25**: 55. 1898.

Horkelia fusca tenella S. Wats. Bot. Calif. **1**: 181. 1876.
Potentilla Douglasii tenella Greene, Fl. Fran. **1**: 67. 1891.

Perennial, with a thick root and short caudex; stems slender, 2–3 dm. high, glandular-pruinose; stipules lanceolate, toothed; basal leaves 5–8 cm. long, with 4–6 pairs of leaflets, which are cuneate, 5–15 mm. long, slightly glandular-pruinose and with a few scattered

hairs, or almost glabrous, thin, cleft at the apex with oblong or lanceolate lobes; stem-leaves with 1–4 pairs of somewhat narrower and smaller leaflets; inflorescence rather open; hypanthium cupulate, usually purplish, 1.5 mm. high, glandular-puberulent and slightly hairy; bractlets linear, 1 mm. long; sepals lanceolate, 1.5 mm. long, acuminate; petals white, broadly cuneate, about 2 mm. long; filaments triangular; pistils rather few.

TYPE LOCALITY: Sierra County, California.
DISTRIBUTION: California and Oregon.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl 72.*

21. **Horkelia parviflora** Nutt.; H. & A. Bot. Beech. Voy. 338. 1838.

Potentilla Andersonii Greene, Pittonia 1: 104. 1887.

Perennial, with a short woody caudex; stems erect or ascending, densely glandular and more or less tinged with red, 1–2 dm. high; stipules lanceolate; basal leaves numerous; leaflets 5–8 pairs, more or less densely hirsute and glandular, obovate or nearly orbicular, coarsely crenate; stem-leaves similar but with cuneate leaflets; cyme subcapitate; hypanthium cup-shaped, 2–3 mm. in diameter, hirsute and glandular, often tinged with purple; bractlets linear or nearly filiform, much shorter than the broadly lanceolate sepals, which are 2–3 mm. long; petals broadly cuneate, spatulate or obovate, 2–3 mm. long, emarginate.

TYPE LOCALITY: "California"; but Nuttall's specimens were collected on the plains of the Oregon towards the Rocky Mountains.
DISTRIBUTION: Sierra Nevada of California and mountains of adjacent Nevada and Oregon.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 68.*

22. **Horkelia pseudocapitata** Rydb.; Howell, Fl. NW. Am. **1**: 180. 1898.

Horkelia congesta Newb. Pacif. R. R. Rep. 6^3: 73. 1857. Not *H. congesta* Hook. 1829.

Perennial, with a short woody caudex; stem ascending or erect, 3–6 dm. high, more or less villous and usually not at all glandular, simple or branched above; stipules ovate or ovate-lanceolate, acute, often more or less toothed; basal leaves 1–2 dm. long, pinnate; leaflets 4–6 pairs, often very densely villous but sometimes only a little hairy, obovate or cuneate, toothed toward the apex, generally obtuse; stem-leaves similar but with fewer leaflets, those subtending the subcapitate many-flowered cyme nearly equaling the flowers; hypanthium woolly-hirsute, cupulate; bractlets linear, shorter than the lanceolate acute sepals, which are about 4 mm. long; petals broadly cuneate-spatulate, about 5 mm. long and 3 mm. wide, truncate at the apex.

TYPE LOCALITY: Tanesville, California.
DISTRIBUTION: Northern California and western Nevada.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 69.*

23. **Horkelia capitata** Lindl. Bot. Reg. **23**: sub *pl. 1997.* 1837.

Potentilla capitata Greene, Pittonia 1: 104. 1887.

Perennial; stem erect, rather simple, 4–6 dm. high, nearly glabrous below, glandular-hirsute above; stipules broadly lanceolate, 2–3 cm. long, acuminate, more or less toothed; basal leaves 2–3 dm. long, pinnate, nearly glabrous; leaflets 5–7 pairs, obovate or oval, 2–3 cm. long, deeply incised-toothed; stem-leaves similar, but the upper with narrower oblanceolate acute leaflets, those subtending the subcapitate cyme simple, broad and palmately divided into lanceolate, acuminate, glandular-ciliate segments, which about equal the flowers; hypanthium glandular-hirsute, deeply cup-shaped; bractlets linear, nearly equaling the triangular-lanceolate acuminate sepals, which are 4–5 mm. long; petals broadly cuneate 5–6 mm. long and 4 mm. wide, much exceeding the sepals, truncate at the apex.

TYPE LOCALITY: California.
DISTRIBUTION: Mountains of Oregon and Idaho; California (?).
ILLUSTRATIONS: Gartenflora 1872: *pl. 711, f. 4–6;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 70.*

24. **Horkelia fusca** Lindl. Bot. Reg. **23**: *pl. 1997*. 1837.

Potentilla Douglasii Greene, Pittonia 1: 103. 1887.

Perennial, with a short woody caudex; stems several, 2–6 dm. high, erect or ascending, often much branched, more or less glandular, especially upward, often more or less tinged with brown or purple; stipules ovate to lanceolate, acute, more or less toothed, 1–2 cm. long; basal leaves generally numerous, 1–2 dm. long, somewhat glandular-pubescent or glabrate; leaflets 5–7 pairs, obovate or cuneate, toothed or incised toward the apex, 0.75–2 cm. long; stem-leaves similar but with fewer leaflets; leaves subtending the subcapitate cymes small, much shorter than the heads; hypanthium glandular-villous, cupulate, more or less tinged with brown or purple; bractlets linear, much shorter than the ovate-lanceolate sepals; petals broadly cuneate, 3–4 mm. long and 2 mm. wide, truncate at the apex.

TYPE LOCALITY: California.
DISTRIBUTION: Oregon, California, and Nevada.
ILLUSTRATIONS: Lindl. Bot. Reg. **23**: *pl. 1997*; Mem. Dep. Bot. Columbia Univ. **2**: *pl. 71*.

25. **Horkelia tenuisecta** Rydberg, sp. nov.

Horkelia tenella Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 136, in part. 1898.

Perennial, with a taproot and short woody caudex; stem 1–3 dm. high, slender, erect and simple, more or less tinged with red, often nearly glabrous below, densely glandular above; stipules lanceolate, generally with a few coarse teeth; basal leaves numerous, pinnate, hirsute-puberulent and glandular or glabrate; leaflets 5–10 pairs, 0.5–1 cm. long, cuneate or obovate in outline, divided to below the middle or sometimes almost to the base into linear or linear-oblong segments; stem-leaves few and similar; those subtending the subcapitate or sometimes quite open cymes small and simple, incised, shorter than the flower-clusters; hypanthium cup-shaped, about 4 mm. in diameter, glandular-hirsute; bractlets linear, much shorter than the lanceolate-triangular sepals, which are about 4 mm. long; petals cuneate, slightly emarginate, 4 mm. long and 3 mm. wide, truncate at the apex.

Type collected in Falcon Valley, Washington, in 1882, *W. N. Suksdorf 2492*.
DISTRIBUTION: Meadows and open woods, California, Oregon, and Washington.

V. **Sericatae.** Stems slender and ascending; leaves pinnate with very numerous small imbricate cinereous or hispidulous leaflets resembling those of some species of *Ivesia*. Inflorescence cymose, open, few-flowered. Hypanthium small, hemispheric; bractlets linear, shorter than the sepals. Petals obcordate, more or less unguiculate, white.

26. **Horkelia sericata** S. Wats. Proc. Am. Acad. **20**: 364. 1885.

Potentilla sericata Greene, Pittonia 1: 104. 1887.

Perennial, with a short caudex covered with densely hirsute scales; stems several, very slender, strict and simple, sometimes decumbent at the base, somewhat villous and tinged with red; stipules lanceolate, about 5 mm. long, mostly entire; basal leaves many, densely white-silky-villous, pinnate, with 10–18 very crowded pairs of small leaflets, which are 5 mm. long, ovate-oblong and entire, or cleft to the base into 2–3 similar segments; stem-leaves similar but smaller; cyme few-flowered with elongate branches and very short pedicels; hypanthium cupulate, densely silky, 3–4 mm. in diameter; bractlets linear, shorter than the lanceolate sepals, which are about 3 mm. long; petals obcordate, unguiculate, much exceeding the sepals, white.

TYPE LOCALITY: Summit of Coast Range in Curry County, Oregon.
DISTRIBUTION: Coast Mountains, southern Oregon.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 81, f. 6–10*.

27. **Horkelia hispidula** Rydberg, sp. nov.

Perennial, with a short erect caudex covered by the remains of old leaves; stems about 2 dm. high, slender, sparingly hirsute and glandular-puberulent; leaves mostly basal, pinnate, with 13–25 rather crowded leaflets, densely hirsute with short hairs; leaflets cuneate-flabelliform in outline, 4–6 mm. long, divided to near the base into 3–6 spatulate divisions;

stipules of the basal leaves linear-lanceolate, those of the stem-leaves lanceolate and more foliaceous; stem-leaves few, with fewer and narrower leaflets and lobes; inflorescence 3–4-flowered, with strongly ascending branches; hypanthium hemispheric, about 4 mm. wide, sparingly pilose and glandular-puberulent; bractlets narrowly linear, 2–3 mm. long; sepals lanceolate-acuminate, about 4 mm. long; petals obcordate, rather deeply notched, 5 mm. long; filaments much dilated, lanceolate, unequal.

Type collected under pines among rocks, White Mountains, California, at an altitude of 3300 m., in 1888, *W. H. Shockley 596* (Gray Herbarium).

VI. **Tridentatae.** Stems slender and ascending; leaves pinnate with 2–4 pairs of cuneate leaflets, which are 2–3- (seldom 5-) toothed at the apex or entire. Hypanthium cupulate or campanulate. Petals oblanceolate or spatulate, unguiculate, white or yellowish. Stamens 10; filaments often linear-lanceolate. Pistils few, 5–15.

28. **Horkelia tridentata** Torr. Pacif. R. R. Rep. 4: 84. 1857.

Ivesia tridentata A. Gray, Proc. Am. Acad. 7: 338. 1868.
Horkelia Tilingi Regel, Acta Hort. Petrop. 1: 153. 1871.
Potentilla Tilingi Greene, Pittonia 1: 105. 1887.

Perennial, with a deep taproot and short cespitose caudex; stems several, ascending or decumbent, 2–4 dm. high, silky-villous, simple; stipules very variable, sometimes ovate and entire, sometimes finely dissected; basal leaves numerous, grayish- or white-silky, or glabrous on the upper surface, pinnate, with 3–4 pairs of cuneate or obovate leaflets, which are generally 3-toothed at the apex (rarely 4–5-toothed), and about 1 cm. in length; stem-leaves smaller, with 1 or 2 pairs of leaflets; cyme often somewhat branched, with sub-capitate small clusters at the end of the branches or the simple stem; hypanthium silky-villous, cup-shaped, in fruit 3–4 mm. in diameter; bractlets linear, a third to a half the length of the broadly ovate sepals, which are 1–2 mm. long; petals oblanceolate, a little longer than the sepals; filaments all linear-lanceolate; pistils 5–10.

TYPE LOCALITY: Wet ravines, Duffield's Ranch, Sierra Nevada, California.
DISTRIBUTION: Mountain regions of California and southern Oregon.
ILLUSTRATIONS: Pacif. R. R. Rep. 4: *pl. 6;* Gartenflora 1872: *pl. 711, f. 1–3;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 74.*

29. **Horkelia integrifolia** (Wood) Rydberg, sp. nov.

Horkelia tridentata integrifolia Wood, in herb.

Perennial, with a taproot and short cespitose caudex; stems several, ascending, or decumbent at the base, 3–4 dm. high, sparingly pubescent with appressed hairs; stipules lanceolate, entire; basal leaves numerous, 3–6 cm. long, silky-canescent on both sides with appressed pubescence; leaflets 2–3 pairs, elliptic, entire or minutely toothed at the apex, about 1 cm. long; stem-leaves small, with oblong or lanceolate leaflets; inflorescence as in *H. tridentata*; hypanthium sparingly silky-villous, cup-shaped, in fruit 3 mm. wide; bractlets linear, shorter than the lanceolate sepals, which in fruit are about 2 mm. long; petals white, oblanceolate, a little exceeding the sepals; filaments linear-lanceolate.

Type collected on "Mt. Hook" [Mt. Hood?], in 1866, *A. Wood 815* (herb. Columbia Univ.).

30. **Horkelia flavescens** Rydb. Mem. Dep. Bot. Columbia Univ. 2: 138. 1898.

Tufted plant, with a perennial deep root; stems several, subscapose or with a few small leaves, sparingly silky-villous, scarcely more than 1 dm. high; basal leaves numerous, sparingly silky-villous, pinnate, with 3 or 4 pairs of cuneate or obovate leaflets, which are about 1 cm. long and 2–3-toothed at the apex; cyme much contracted, dense, subcapitate; hypanthium silky-villous, cupulate, more or less tinged with brown; bractlets linear, about half as long as the ovate-triangular sepals, which are about 3 mm. long; petals spatulate or obovate, unguiculate, yellowish, at least in the dry state, a little exceeding the sepals; fila-

ments of the antisepalous stamens triangular to lanceolate, those of the antipetalous ones lanceolate; pistils 8–15.

TYPE LOCALITY: California.
DISTRIBUTION: Sierra Nevada, California.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 75.*

31. **Horkelia congesta** Hook. Bot. Mag. **56**: *pl. 2880.* 1829.

Sibbaldia congesta Dietr. Syn. Pl. 2: 1020. 1840.
Potentilla congesta Baillon, Hist. Pl. 1: 369. 1867–9.

Perennial, with a short caudex; stem slender, strict, sparingly ciliate below, glabrous or finely puberulent above, 3–4 dm. high; stipules pectinately dissected, the lower occasionally divided into linear segments as in the next section; basal leaves pinnate; leaflets 4 or 5 pairs, sparingly appressed-silky and ciliate, light-green, thin and shining, linear-oblong, 1–1.5 cm. long, entire, except at the very apex, where they are deeply 2–3-toothed, the teeth acute; stem-leaves smaller, with linear leaflets; cyme branched, with few upright branches terminated by small subcapitate clusters of flowers; hypanthium hemispheric, tinged with light-brown, sparingly silky-villous, about 5 mm. in diameter; bractlets linear-filiform, a little shorter than the ovate-acuminate sepals, which are 2–3 mm. long; petals broadly spatulate or obovate, yellowish, at least in the dry state, exceeding the sepals by one-half; filaments all lanceolate.

TYPE LOCALITY: Cape Mendocino, California.
DISTRIBUTION: Oregon and northern California.
ILLUSTRATIONS: Hook. Bot. Mag. 56: *pl. 2880;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 76.*

VII. **Hirsutae.** Resembling the preceding group but with more numerous and usually deeply dissected leaflets, broader petals, broader filaments, more numerous pistils, and the lower stipules once or twice pinnately dissected into linear or filiform hairy segments.

32. **Horkelia pulchra** Rydberg, sp. nov.

Perennial, with a thick root and short woody caudex; stems several, about 2 dm. high, sparingly silky-hirsute, tinged with red; basal leaves numerous, 4–6 cm. long; leaflets 6–9 pairs, 6–8 mm. long, cuneate, deeply 3–5-cleft at the apex into oblong or lanceolate lobes, appressed-silky on both sides, somewhat sericeous; stem-leaves smaller, with fewer and narrower leaflets; stipules pectinately divided into linear segments, those of the basal leaves into filiform, hairy, curled divisions; cyme dense and subcapitate; hypanthium cupulate, appressed-silky; flowers 4 mm. wide; bractlets linear or subulate, 3 mm. long; sepals ovate-lanceolate, acute, 4 mm. long; petals apparently light-yellow, broadly cuneate, emarginate, slightly exceeding the sepals; filaments lance-subulate; pistils 5–10.

Type collected on Mount Shasta, in 1887, *C. C. Parry* (herb. Columbia Univ.).

33. **Horkelia hirsuta** Lindl. Bot. Reg. **23**: sub *pl. 1997.* 1837.

Horkelia congesta T. & G. Fl. N. Am. 1: 434. 1840. Not *H. congesta* Hook. 1829.
Horkelia pilosa Nutt.; T. & G. Fl. N. Am. 1: 434, as synonym. 1840.

Perennial, with a short scaly and very hirsute caudex; stems about 3 dm. high, strict and simple, somewhat striate, hirsute with long spreading hairs, a little glandular above; stipules pectinately divided into linear segments, those of the basal leaves very finely dissected and very hairy; basal leaves numerous, pinnate, sparingly silky-pubescent, the rachis long-hirsute; leaflets 5–9 pairs, cuneate or oblong-cuneate, 1–2 cm. long, 3–5-toothed at the apex, with oblong acute teeth; stem-leaves similar but with nearly linear leaflets; cyme very dense and flowers subsessile; hypanthium cupulate, about half as deep as wide, about 5 mm. in diameter, silky-hirsute; bractlets linear, nearly filiform, a little shorter than the lanceolate or ovate-triangular sepals, which are about 3 mm. long; petals white, broadly spatulate or obovate, a little exceeding the sepals.

TYPE LOCALITY: California.
DISTRIBUTION: Oregon and northern California.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 77.*

34. **Horkelia daucifolia** (Greene) Rydb. Bull. Torrey Club **25**: 55. 1898.

Horkelia congesta Brewer & Wats. Bot. Calif. 1: 181, in part. 1876.
Potentilla daucifolia Greene, Pittonia 1: 160. 1888.
Potentilla congesta lobata Lemmon, Bull. Torrey Club 16: 221. 1889.

Perennial, with a short caudex covered with densely pubescent scales; stem about 3 dm. high, strict and mostly simple, pilose with long fine hairs and glandular throughout; stipules pectinately divided into linear segments, those of the basal leaves finely twice dissected into nearly filiform, hairy, more or less curled segments; leaves pinnate, sparingly silky-pilose, the rachis with long spreading hairs; leaflets 8–12 pairs, 1–3 cm. long, divided to near the base into linear acute segments; cyme more open than in *H. hirsuta*; pedicels 3–10 mm. long; hypanthium silky-pilose, cupulate, in fruit about 8 mm. in diameter; bractlets linear, nearly subulate, a little shorter than the broadly lanceolate sepals, which are 5–6 mm. long; petals cream-colored, spatulate-oblong, a little exceeding the sepals.

TYPE LOCALITY: Klamath and Shasta Valleys, California.
DISTRIBUTION: Northern California and southern Oregon.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 78*.

35. **Horkelia caruifolia** Rydb.; Howell, Fl. NW. Am. **1**: 181. 1898.

Perennial, with a short scaly caudex; stem slender, strict, simple, silky-pilose and villous-puberulent, but not at all glandular; stipules pectinately dissected into very narrowly linear segments, those of the basal leaves twice dissected into nearly filiform curled and hairy segments; leaves pinnate, sparingly silky-pilose, the rachis with divergent hairs; leaflets 6–10 pairs, 1–2 cm. long, finely dissected into narrowly linear segments; cyme rather dense, and pedicels very short; hypanthium silky-villous, cupulate, 5–7 mm. in diameter; bractlets linear, shorter than the broadly lanceolate-acute sepals, which are about 5 mm. long; petals broadly cuneate or obcordate, with a distinct claw, a little exceeding the sepals.

TYPE LOCALITY: On high hills, near Ashland, Rogue River Valley, Oregon.
DISTRIBUTION: Type locality and vicinity.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 79*.

36. **Horkelia laxiflora** (Drew) Rydb. Bull. Torrey Club **25**: 55. 1898.

Potentilla laxiflora Drew, Bull. Torrey Club 16: 151. 1889.

Perennial, with a taproot and short woody caudex covered with densely hirsute scales; stem rather slender, ascending, simple below, 2–4 dm. high, nearly glabrous; lower stipules finely divided into filiform, more or less hairy, curled segments, the upper lanceolate, 5–10 mm. long, more or less toothed; basal leaves many, slightly hairy, in age glabrate, pinnate; leaflets 10–12 pairs, cuneate-flabelliform, cleft at the apex for about half their length into 2–5 oblong acute divisions; stem-leaves small and few; cyme open and branched; branches divergent-ascending; pedicels 3–10 mm. long; hypanthium finely puberulent, cupulate, in fruit 3–4 mm. in diameter; bractlets linear, much smaller than the triangular-lanceolate acuminate sepals; petals white, spatulate, exceeding the sepals; filaments white, oblong-subulate; pistils few.

TYPE LOCALITY: Hy-Am-Pum Valley, California.
DISTRIBUTION: Northern California and southern Oregon.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 80*.

37. **Horkelia Howellii** (Greene) Rydb. Bull. Torrey Club **25**: 55. 1898.

Potentilla Howellii Greene, Pittonia 1: 104. 1887.

Perennial, with a taproot and short caudex covered with densely hispid scales (remains of the lower part of the stipules); stem slender, strict and simple, more or less red, sparingly villous and somewhat glandular, 2-4 dm. high; lower stipules finely twice dissected into filiform, curved and hairy segments, the upper 5–10 mm. long, ovate, more or less

dissected into oblong or lanceolate lobes; basal leaves numerous, more or less villous, especially the rachis, in age glabrate, with 5–20 pairs of small crowded leaflets, these often divided to the base into two or three oblong or oval, entire or 2–3-cleft segments, 3–10 mm. long; cyme open with divergent branches but with very short pedicels; hypanthium cupulate, villous and glandular, in fruit 3–4 mm. in diameter; bractlets linear or linear-lanceolate, smaller than the lanceolate sepals, which are about 3 mm. long; petals white, broadly spatulate, with somewhat retuse apex, a little exceeding the sepals; pistils few.

TYPE LOCALITY: Near Waldo, Oregon.
DISTRIBUTION: Siskiyou Mountains of California and Oregon.
ILLUSTRATION: Mem. Dept. Bot. Columbia Univ. **2**: *pl. 81, f. 1–5.*

15. **HORKELIELLA** Rydberg, gen. nov.

Horkelia § *Horkeliella* Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 120. 1898.

Perennial herbs, with scaly rootstock and short erect caudex. Leaves pinnate, with very numerous, crowded, deeply cleft leaflets. Inflorescence openly cymose, rather few-flowered. Hypanthium deeply campanulate. Bractlets, sepals, and petals 5. Sepals lanceolate, in anthesis reflexed. Petals oblanceolate or cuneate, white. Stamens 20, inserted in the throat of the hypanthium; filaments dilated, white, subulate or lanceolate. Receptacle conic or hemispheric. Pistils numerous; style long and slender, terminal, slightly thickened and glandular below.

Type species, *Horkelia purpurascens* S. Wats.

Stem 3–4 dm. high, glabrous; leaflets 5–8 mm. long. 1. *H. pinetorum.*
Stem 1–2 dm. high, pubescent; leaflets 2–3 mm. long.
  Petals emarginate; stem pubescent but not glandular. 2. *H. purpurascens.*
  Petals not emarginate; stem glandular. 3. *H. Congdonis.*

1. **Horkeliella pinetorum** (Coville) Rydberg.

Potentilla purpurascens pinetorum Coville, Proc. Biol. Soc. Wash. **7**: 77. 1892.
Horkelia pinetorum Rydb. Bull. Torrey Club **25**: 55. 1898.

Perennial, with deep woody root and cespitose caudex; stem glabrous, about 3 dm. high, slender and somewhat branched; stipules ovate, entire, about 5 mm. long, basal leaves numerous, 1–1.5 dm. long, pinnate, with 15–20 pairs of thin glabrous leaflets, which are 5–7 mm. long and divided to near the base into 2–4 broadly oblong segments; stem-leaves minute; cyme open, with ascending branches; hypanthium deeply cupulate or nearly campanulate, hairy, tinged with brown or purple; bractlets oblong or ovate, erect, about a third the length of the reflexed lanceolate sepals, which are 4–5 mm. long; petals oblong-spatulate to strap-shaped, white, slightly exceeding the sepals, emarginate.

TYPE LOCALITY: Trout Meadow, Sierra Nevada, Tulare County, California.
DISTRIBUTION: Southern Sierra Nevada, California.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 83.*

2. **Horkeliella purpurascens** (S. Wats.) Rydberg.

Horkelia purpurascens S. Wats. Proc. Am. Acad. 11: 148. 1876.
Potentilla purpurascens Greene, Pittonia 1: 105. 1887.

Perennial, with a deep woody root, and short erect caudex covered with brown scales; stem strict, 1–2 dm. high, densely but finely hirsute; stipules ovate, entire, 3–4 mm. long; basal leaves numerous, less than 1 dm. long, densely hirsute, pinnate, with about 20 pairs of rather thick crowded leaflets, which are only 2–4 mm. long and divided almost to the base into 2–4 oval segments; cyme narrow with upright branches; hypanthium hirsute, cupulate or nearly campanulate; bractlets linear, about half as long as the lanceolate sepals, which are 3–4 mm. long; petals oblong to strap-shaped, emarginate, slightly exceeding the sepals.

TYPE LOCALITY: Headwaters of Kern River, California.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Rothr. Bot. Wheeler's Surv. *pl. 3A*; Mem. Dep. Bot. Columbia Univ. **2**: *pl. 82.*

3. **Horkeliella Congdonis** Rydberg.

Horkelia Congdonis Rydb. Bull. Torrey Club **26**: 543. 1899.

Perennial, with a woody caudex; stems erect, 3–4 dm. high, few-leaved, somewhat branched above, glandular-puberulent; basal leaves 1–1.5 dm. long, with 30–40 pairs of leaflets; stem-leaves similar but smaller; upper stipules deeply cleft; leaflets 3–5 mm. long, cleft to the base into 4–5 oblong divisions, obtuse, glandular-puberulent; cyme with a few ascending branches and short-pedicelled flowers; hypanthium campanulate, 7–8 mm. in diameter in fruit, glandular-puberulent; bractlets lanceolate, one-half or two-thirds the length of the lanceolate acuminate sepals; petals almost equaling the sepals, oblong, obtuse; filaments slightly dilated, subulate; pistils numerous.

TYPE LOCALITY: Casa Diabolo, California.
DISTRIBUTION: Known only from the type locality.

16. **IVESIA** T. &. G. in Newb. Pacif. R. R. Rep. **6**[3]: 72. 1857.

Perennial, with thick erect rootstocks, and short, often woody caudices. Leaves mostly basal and numerous, pinnately divided, usually into numerous, small, more or less crowded and imbricate leaflets. Inflorescence cymose, open or dense. Hypanthium from deeply campanulate or turbinate to saucer-shaped. Bractlets, sepals, and petals 5. Petals usually oblanceolate and more or less clawed but sometimes nearly orbicular and practically clawless, white or yellow. Stamens 5–20, inserted in the throat of the hypanthium and therefore separated from the receptacle by an open space; filaments filiform, except in *I. argyrocoma*, in which they are subulate and slightly dilated. Receptacle from hemispheric to flat, usually poorly developed and bearing 3–15 pistils surrounded by a ring of prominent bristles. Styles long and slender, terminal or nearly so, sometimes slightly thickened and glandular below. Ovules and seeds pendulous and anatropous.

Type species, *Horkelia Gordonii* Hook.

Leaflets numerous, more or less crowded, often imbricate, generally divided to near the base.
  Stem leafy (less so in *I. campestris* and *I. callida*); stamens 15–20.
    Cyme corymbiform or subcapitate; petals obovate with long claws. I. UNGUICULATAE.
    Cyme generally open with lax branches; petals with very short claws if any, white. II. EREMICAE.
  Stems few-leaved or scapiform; stamens 5–10. III. LYCOPODIOIDES.
Leaflets comparatively few, broadly obovate to reniform-flabelliform, merely coarsely toothed or incised. IV. SETOSAE.

I. UNGUICULATAE.

Whole plant silvery-white; leaf-segments oblong; stamens 20.
  Filaments somewhat dilated; flowers in small subcapitate clusters. 1. *I. argyrocoma.*
  Filaments not dilated; cyme corymbose.
    Petals white. 2. *I. sericoleuca.*
    Petals yellow. 3. *I. Pickeringii.*
Plant somewhat silky, but not silvery-white.
  Petals white; leaflets 5–10 mm. long; stamens normally 15. 4. *I. unguiculata.*
  Petals yellow; leaflets less than 5 mm. long; stamens 20.
    Stems decumbent; petals spatulate. 5. *I. campestris.*
    Stems erect or ascending; petals flabelliform-spatulate. 6. *I. mollis.*

II. EREMICAE.

Petals orbicular or broadly obovate; plant 2–4 dm. high.
  Leaflets generally simple, 2-ranked, more or less appressed-hirsute. 7. *I. eremica.*
  Leaflets generally divided, perfectly glabrous. 8. *I. Kingii.*
Petals elliptic; plant less than 1 dm. high. 9. *I. callida.*

III. LYCOPODIOIDES.

Leaflets not bristle-tipped.
  Leaves densely white-silky, appearing worm-like from the very small numerous imbricate leaflets.
    Plant 2–4 cm. high; bractlets ovate; petals cuneate. 10. *I. Muirii.*
    Plant 7–16 cm. high; bractlets linear; petals linear. 11. *I. Chandleri.*
  Leaves green.
    Leaves slightly silky; leaflets 8–10 pairs, 1–2 cm. long. 12. *I. Webberi.*
    Leaves glandular-pubescent or glabrate; leaflets numerous.
      Cyme corymbiform; hypanthium cupulate.
        Bractlets linear; petals spatulate.
          Stems decumbent; segments of the leaves oblong to spatulate. 13. *I. utahensis.*
          Stems erect; segments of the leaves linear. 14. *I. Tweedyi.*

Bractlets oblong or lanceolate.
Leaves pubescent.
Petals broadly obovate; leaflets about 2 mm. long; sepals acute. 15. *I. scandularis.*
Petals spatulate; leaflets about 5 mm. long; sepals acuminate. 16. *I. mutabilis.*
Leaves glabrous; petals oblanceolate. 17. *I. lycopodioides.*
Cymes subcapitate.
Hypanthium campanulate; petals spatulate, shorter than the sepals. 18. *I. Gordonii.*
Hypanthium cupulate; petals obovate, much exceeding the sepals. 19. *I. megalopetala.*
Leaflets mostly bristle-pointed.
Stamens 5; plant less than 1 dm. high.
Cymes subcapitate; hypanthium about 4 mm. in diameter. 20. *I. pygmaea.*
Cymes corymbiform; hypanthium about 3 mm. in diameter. 21. *I. Shockleyi.*
Stamens 10; plant 1–1.5 dm. high. 22. *I. chaetophora.*

IV. SETOSAE.

Leaflets obovate or orbicular, with rounded teeth, usually without terminal bristles. 23. *I. Baileyi.*
Leaflets cuneate, cleft, with oblong, usually bristle-pointed teeth. 24. *I. setosa.*

I. **Unguiculatae.** Stems rather many from the caudex, rather leafy and many-flowered. Flowers in more or less contracted corymbiform or subcapitate cymes. Hypanthium turbinate or campanulate. Petals obovate, with evident claws. Stamens 15–20, in *I. argyrocoma* with slightly dilated filaments. Plant more or less silky hairy, not glandular, and with numerous leaflets.

1. **Ivesia argyrocoma** Rydberg.

Horkelia argyrocoma Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 144. 1898.

Perennial, with a thick and deep root, crowned by a short caudex covered by brown hairy scales; stems decumbent or ascending, slender, tinged with brown, silky-villous, the lower part, as well as the petioles, covered with long silvery spreading or reflexed hairs in a most beautiful manner; stipules ovate-lanceolate, often toothed, about 5 mm. long; basal leaves numerous, 4–7 cm. long, densely white-silvery silky, of very numerous densely imbricate leaflets; cymes dense, subcapitate; hypanthium cupulate, silky, in fruit 3 mm. in diameter; bractlets oblong, shorter than the ovate sepals, which are about 3 mm. long; petals white, spatulate, a third exceeding the sepals; stamens 20; filaments subulate.

TYPE LOCALITY: California.
DISTRIBUTION: Mountains of southern California.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 84.*

2. **Ivesia sericoleuca** Rydberg.

Ivesia unguiculata Brewer & Wats. Bot. Calif. **1**: 183, mainly, as to description and Lemmon's specimens. 1876. Not *I. unguiculata* A. Gray, 1868.
Potentilla unguiculata Greene, Fl. Fran. 1: 68, mainly. 1891.
Horkelia sericoleuca Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 144. 1898.

Perennial, with a very thick root, crowned with a short caudex covered with brownish, densely yellowish-hairy scales; stems several, 3–4 dm. high, erect or ascending, branched, silky-villous and rather leafy; stipules lanceolate, 1–2 dm. long, often pectinately cleft; basal leaves numerous, 1–2 dm. long, densely white-silky, pinnate; leaflets numerous, generally over 30, crowded and more or less imbricate; petioles and lower part of the stem silky-villous with long and reflexed hairs; leaflets 5–10 mm. long, divided to the base into oblong segments; cyme much branched, many-flowered, at first rather dense, in age open, more or less flat-topped; hypanthium cup-shaped or campanulate, 3–5 mm. in diameter; bractlets oblong or lanceolate, about a third shorter than the lanceolate-acuminate sepals, which are 4 mm. long; petals white, broadly obovate, clawed, exceeding the sepals, truncate or slightly emarginate; stamens 20; filaments filiform.

TYPE LOCALITY: California.
DISTRIBUTION: Sierra Nevada, California.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 85.*

3. **Ivesia Pickeringii** A. Gray, Proc. Am. Acad. **6**: 531. 1865.

Potentilla Pickeringii Greene, Pittonia 1: 105. 1887.
Horkelia Pickeringii Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 145. 1898.

Perennial, with a deep and thick root, crowned by a short erect caudex covered with brown-hairy scales; stems erect or ascending, 2–4 dm. high, finely villous, more or less leafy, dichotomously branched; stipules lanceolate; leaves numerous, grayish or white, silky-villous, pinnate with very numerous, crowded and somewhat imbricate leaflets, these generally less than 5 mm. long, 2–4-cleft to the base into oblong-oval segments; cyme at first dense, in age open, dichotomously branched, but with nearly sessile flowers; hypanthium cup-shaped or turbinate, villous, in age 4 mm. in diameter; bractlets linear-lanceolate, about a third shorter than the broadly lanceolate acuminate sepals, which are 3–4 mm. long; petals yellow, spatulate, a little exceeding the sepals, rounded at the apex; stamens 20; filaments filiform.

TYPE LOCALITY: Probably at Sacramento, California.
DISTRIBUTION: Central California.
ILLUSTRATIONS: Bot. U. S. Expl. Exp. *pl. 4;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 86.*

4. **Ivesia unguiculata** A. Gray, Proc. Am. Acad. **7**: 339. 1868.

Potentilla unguiculata Greene, Pittonia **1**: 105. 1887.
Potentilla ciliata Greene, Pittonia **1**: 103. 1887.
Horkelia unguiculata Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 146. 1898.

Perennial, with a deep and thick root, crowned with a short, erect scaly caudex; stems several, more or less brown, sparingly silky-villous, simple, ascending or decumbent, 3–4 dm. high; stipules pectinately divided, rather large; basal leaves numerous, somewhat grayish but not densely silky with long hairs, pinnate, with numerous crowded pairs of leaflets, these 5–7.5 mm. long, divided to the base into linear-oblong or linear acute segments; cyme dense, subcapitate; hypanthium cupulate, slightly silky, 4 mm. in diameter; bractlets lanceolate, slightly shorter than the broadly lanceolate sepals, which are 2–3 mm. long; petals white, broadly spatulate or obovate, exceeding the sepals; stamens 10–15; filaments filiform.

TYPE LOCALITY: Westfall's Meadow, Yosemite Valley, California.
DISTRIBUTION: Southern Sierra Nevada, California.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 87.*

5. **Ivesia campestris** (M. E. Jones) Rydberg.

Potentilla utahensis campestris M. E. Jones, Proc. Calif. Acad. II. **5**: 679. 1895.
Ivesia utahensis campestris M. E. Jones, Proc. Calif. Acad. II. **5**: 679. 1895.
Horkelia campestris Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 147. 1898.

Perennial, with a rather slender root; stems several, decumbent or prostrate, more or less tinged with red, somewhat silky-villous, less than 2 dm. long; stipules lanceolate; basal leaves numerous, less than 5 cm. long, pinnate, with many rather approximate leaflets, more or less silky-hirsute; leaflets about 5 mm. long, divided to the base into linear-oblong segments; stem-leaves few and smaller; cyme branched, the branches with subcapitate clusters; hypanthium cupulate or saucer-shaped, nearly glabrous; bractlets linear, much smaller than the lanceolate-triangular sepals, which are 2 mm. long; petals yellow, spatulate, a little exceeding the sepals; stamens 20; filaments filiform, rather short.

TYPE LOCALITY: Whitney Meadows, Sierra Nevada Mountains, California.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 88, f. 1–4.*

6. **Ivesia mollis** (Eastw.) Rydberg.

Horkelia mollis Eastw. Bot. Gaz. **41**: 286. 1906.

Perennial, with a thick scaly caudex; stems several, ascending, red-purple, villous with fine silky hairs, about 2 dm. high; basal leaves 6–10 cm. long; leaflets crowded, deeply divided into linear-spatulate divisions, 3–4 mm. long, finely villous; stipules adnate, the free portion filiform-attenuate, 4 mm. long; cauline leaves similar but reduced; stipules incised; flowers in a corymbiform or capitate cyme; hypanthium campanulate, 5 mm. long; bractlets linear, about as long as the subulate-lanceolate sepals; petals yellow, clawed; blades broadly spatulate, 1 mm. wide; stamens 15; pistils 5–20; style slightly thickened at the base.

TYPE LOCALITY: Hockett's Meadows, Tulare County, California.
DISTRIBUTION: Type locality and vicinity.

II. **Eremicae.** Stems many from the caudex, decumbent or ascending, leafy. Flower-clusters open, with lax branches. Hypanthium hemispheric. Petals broadly obovate or nearly orbicular to oblong, white, almost destitute of claw. Stamens 20. Plants glabrous, or slightly appressed-hirsute, with numerous leaflets.

7. **Ivesia eremica** (Coville) Rydberg.

Potentilla eremica Coville, Proc. Biol. Soc. Wash. **7**: 76. 1892.
Potentilla Kingii incerta M. E. Jones, Zoe **4**: 277. 1893.
Horkelia eremica Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 147. 1898.

Perennial, with a deep, thick, woody root, crowned by a cespitose caudex; stems several, decumbent or ascending, finely grayish-puberulent or glabrate, 2–4 dm. high, simple, somewhat leafy; stipules ovate, 5 cm. long or less, entire; basal leaves very numerous, grayish hirsute-ciliolate or glabrate, nearly terete and worm-like, with densely crowded ovate leaflets 2–3 mm. long, which, however, are evidently two-ranked; stem-leaves similar; cyme narrow, with erect branches, the pedicels 5–15 mm. long; hypanthium puberulent or glabrate, saucer-shaped, 3 mm. broad; bractlets ovate or oblong, about a third the length of the lanceolate sepals, which are 3 mm. long; petals white, obovate, exceeding the sepals by one half, rounded at the apex; stamens 20; filaments filiform.

TYPE LOCALITY: Watkins' Ranch, Ash Meadow, Nye County, Nevada.
DISTRIBUTION: Desert regions of Nevada.
ILLUSTRATIONS: Contr. U. S. Nat. Herb. **4**: *pl. 7;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 89.*

8. **Ivesia Kingii** S. Wats. Bot. King's Expl. 91. 1871.

Potentilla Kingii Greene, Pittonia **1**: 105. 1887.
Horkelia Kingii Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 148. 1898.
Ivesia pallida Greene; Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 148, as a synonym. 1898.

Perennial, with a thick, deep and woody root, crowned with a very short erect caudex; stems several, leafy, glabrous, prostrate, 2–4 dm. long; stipules ovate, 5–8 mm. long, entire; basal leaves numerous, glabrous and shining, about 5 cm. long, pinnate, with 20–25 pairs of crowded leaflets, glabrous; leaflets 3–5 mm. long, divided to the base into 2–4 ovate or oblong segments; cyme narrow, with slender pedicels 5–10 mm. long; hypanthium saucer-shaped, in fruit 3–4 mm. in diameter; bractlets ovate or lanceolate, about half as long as the broadly lanceolate sepals, which are 2 mm. long; petals white, obovate or broadly spatulate, much exceeding the sepals; stamens 20; filaments filiform.

TYPE LOCALITY: Monitor Valley, Nevada.
DISTRIBUTION: Desert regions of Nevada and western Utah.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 90, f. 1–5.*

9. **Ivesia callida** (Hall) Rydberg.

Potentilla callida Hall, Univ. Calif. Publ. Bot. **1**: 86. 1902.

Perennial, with a thick woody root; stems several, slender, erect or ascending, 5 cm. or less high, villous throughout with long hairs and also bearing some glandular hairs above; stipules ovate, entire or toothed; leaves villous, pinnate; the lower 12–20 mm. long with about 7 pairs of crowded leaflets; the upper much shorter, bract-like, with 1–5 pairs of leaflets; leaflets 2 mm. long, divided to the base into 2 or 3 oval segments; flowers sometimes solitary or 3–6 in a simple inflorescence; hypanthium saucer-shaped, 3–5 mm. wide; bractlets narrow, half as long as the narrowly ovate, acute sepals; petals white, oblong, obtuse or acute at the apex, narrowed but not clawed at the base, about 3 mm. long, a little exceeding the sepals; stamens 20; filaments filiform; pistils several.

TYPE LOCALITY: Cracks of rocks, Tahguits Peak, San Jacinto Mountains, California.
DISTRIBUTION: Known only from the type locality.

III. **Lycopodioides.** Low and cespitose plants, with very thick caudices and short, few-leaved and subscapiform stems. Hypanthium hemispheric or saucer-shaped, in *I. Gordonii* campanulate. Petals generally cuneate or oblnaceolate, mostly clawed. Stamens 5 or 10. Plants silky, glandular or glabrate. Leaflets, except in *I. Webberi*, very numerous, very small and closely imbricate.

10. **Ivesia Muirii** A. Gray, Proc. Am. Acad. 8: 627. 1873.

Potentilla Muirii Greene, Pittonia 1: 106. 1887.
Horkelia Muirii Rydb. Mem. Dep. Bot. Columbia Univ. 2: 148. 1898.

Perennial, from a deep, rather thick root, crowned by an erect caudex 1–4 cm. high, which is covered with the remains of old leaves; stem 2–4 cm. high, scapose, few-flowered, filiform, silky-villous; basal leaves numerous, 2–3 cm. long, densely white-silky, terete and worm-like from the very numerous minute, densely imbricate leaflets; cyme few-flowered, subcapitate; hypanthium cupulate, 3 mm. in diameter, silky-villous; bractlets ovate, minute, less than one fourth as long as the ovate sepals; petals cuneate, shorter than the sepals; stamens 5; filaments filiform.

TYPE LOCALITY: Mount Hoffman, California.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 90. f. 6–10.*

11. **Ivesia Chandleri** Rydberg.

Horkelia Chandleri Rydb. Bull. Torrey Club 28: 177. 1901.

A low silky perennial, with very thick and woody root, and short cespitose caudex, with erect branches densely covered by the remains of old leaves; stems scapiform, slender, silky-villous, 7–16 cm. high; basal leaves numerous, 4–5 cm. long, densely silky, terete, worm-like from the numerous small crowded segments; flowers about 4 mm. in diameter, rather numerous, in subcapitate dense clusters; hypanthium cup-shaped, as well as the calyx densely villous; bractlets linear, about two-thirds as long as the triangular-ovate sepals, which are about 2 mm. long; petals yellow, linear, 1.5 mm. long, shorter than the sepals; stamens mostly 5; filaments subulate-filiform.

TYPE LOCALITY: Mt. Goddard, California.
DISTRIBUTION: Known only from the type locality.

12. **Ivesia Webberi** A. Gray, Proc. Am. Acad. **10**: 71. 1874.

Potentilla Webberi Greene, Pittonia 1: 105. 1887.
Horkelia Webberi Rydb. Mem. Dep. Bot. Columbia Univ. 2: 149. 1898.

Perennial, with a deep root, crowned with an erect, short, scaly caudex; stems several, slender, short, less than 1 dm. long, nearly scapose, more or less tinged with brown, glabrate; basal leaves 3–4 dm. long, many, pinnate, with 8–10 crowded pairs of leaflets, grayish-silky, but not densely so; leaflets about 1 cm. long, divided to the base into linear or lanceolate acute segments; petioles with long fine silky hairs; cyme subcapitate; hypanthium cupulate, tinged with brown, slightly silky, 4 mm. in diameter; bractlets linear or linear-lanceolate, shorter than the ovate or ovate-lanceolate sepals, which are about 4 mm. long; petals oblanceolate, yellow, scarcely equaling the sepals; stamens 5; filaments filiform.

TYPE LOCALITY: Sierra Valley, California.
DISTRIBUTION: Northern Sierra Nevada of California and Nevada.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 88, f. 5–9.*

13. **Ivesia utahensis** S. Wats. Proc. Am. Acad. **17**: 371. 1882.

Potentilla utahensis Greene, Pittonia 1: 162. 1888.
Horkelia utahensis Rydb. Mem. Dep. Bot. Columbia Univ. 2: 150. 1898.

Perennial, with a woody but not very thick root, crowned by a cespitose caudex covered with the remains of old leaves; stems several, about 1 dm. high, simple and few-leaved, glabrous below, glandular above; stipules broadly ovate, entire; basal leaves numerous, 5–8 cm. long, glabrous, pinnate, with 15–20 pairs of crowded leaflets, these 2–4 mm. long, cleft to the base into 3–5, broadly oblong to spatulate, one-nerved segments; stem-leaves few and very small; cyme rather dense and somewhat flat-topped; hypanthium somewhat glandular-puberulent, cup-shaped, veiny, 3 mm. in diameter; bractlets linear, a third shorter than the ovate or lanceolate-ovate sepals, which are 2–2.5 mm. long; petals yellowish, spatulate, scarcely exceeding the sepals; stamens 5; filaments filiform.

TYPE LOCALITY: Bald Mountain, Wahsatch Range, above Alta, Utah.
DISTRIBUTION: Mountains of Utah.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 91, f. 1–4.*

14. **Ivesia Tweedyi** Rydberg, sp. nov.

Perennial, with a thick root and a short caudex; stems several, erect, 1.5–2 dm. high, glandular-puberulent; basal leaves 8–10 cm. long, pinnate, with 10–12 pairs of crowded leaflets, glandular-puberulent; leaflets 5–8 mm. long, dissected to near the base into narrow divisions; stem-leaves few and reduced; inflorescence cymose with strongly ascending branches; hypanthium cupulate, in fruit 3 mm. wide, glandular puberulent and slightly silky-pilose; bractlets narrowly linear, about 1.5 mm. long; sepals triangular-lanceolate, about 2.5 mm. long; petals yellow, spatulate, slightly exceeding the sepals; stamens 5; filaments filiform.

Type collected in the Yakima Region, Washington, in August, 1883, *F. Tweedy* (herb. Columbia Univ.).

DISTRIBUTION: Eastern slope of the Cascades, Washington.

15. **Ivesia scandularis** Rydberg.

Horkelia scandularis Rydb. Mem. Dep. Bot. Columbia Univ. 2: 150. 1898.
Ivesia pygmaea S. Wats.; Rydb. Mem. Dep. Bot. Columbia Univ. 2: 150, as a synonym. 1898.

Cespitose perennial, with a thick woody root; stems several, less than 1 dm. high, decumbent, slightly glandular-puberulent, nearly leafless; basal leaves numerous, 2–5 dm. long, pinnate with numerous crowded and somewhat imbricate leaflets, glandular-puberulent, light green, often yellowish; leaflets about 2 mm. long, divide to the base into thick oblong segments; cyme corymbiform; hypanthium cupulate or almost saucer-shaped, in fruit 4 mm. in diameter; bractlets oblong, about half the length of the ovate sepals; petals obovate, a little exceeding the sepals; stamens 5, nearly equaling the sepals; pistils 5–10.

TYPE LOCALITY: White Mountains, California.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 91, f. 5–9.*

16. **Ivesia mutabilis** (Brand.) Rydberg.

Horkelia mutabilis Brand. Bot. Gaz. 27: 446. 1899.

Perennial, with a very thick woody root and short caudex; stems several, 3 dm. high, erect, branched above, somewhat villous or nearly glabrous; stipules ovate-lanceolate; basal leaves numerous, 12–20 cm. long, pinnate with numerous leaflets, villous with short hairs and somewhat glandular; leaflets sessile, more or less imbricate, 2–5 mm. long, usually divided to near the base into obovate-oblong divisions; cyme much branched, open; hypanthium 4 mm. broad, glandular-puberulent and sparingly hirsute; bractlets lanceolate, half as long as the broadly lanceolate sepals, which are 4–5 mm. long; petals yellow, shorter than the sepals, oblanceolate; stamens 5; filaments filiform, 2 mm. long; pistils 2–7.

TYPE LOCALITY: Charleton Mountains, Nevada.
DISTRIBUTION: Mountains of Nevada and Utah.

17. **Ivesia lycopodioides** A. Gray, Proc. Am. Acad. 6: 530. 1865.

Ivesia Gordonii lycopodioides S. Wats. Bot. Calif. 1: 183. 1876.
Potentilla Gordonii lycopodioides Greene, Pittonia 1: 106. 1887.
Horkelia lycopodioides Rydb. Mem. Dep. Bot. Columbia Univ. 2: 151. 1898.

Densely cespitose perennial, with a deep woody root; stem scapose, glabrous, less than 5 cm. high; basal leaves very numerous and crowded, about 3 cm. long, glabrous, with numerous minute crowded and more or less imbricate leaflets, these only 1–2 mm. long, 3-cleft into oval thick segments; cyme few-flowered and corymbose; hypanthium cupulate or saucer-shaped, about 3 mm. in diameter, glabrous or slightly puberulent; bractlets oblong, about two-thirds as long as the ovate sepals, which are 2 mm. long; petals yellow, oblong-oblanceolate, about equaling the sepals; stamens 5, with slender but short filaments; pistils 6–12.

TYPE LOCALITY: Mount Dana, Sierra Nevada, California.
DISTRIBUTION: Sierra Nevada.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 92, f. 1–6.*

18. **Ivesia Gordonii** (Hook.) T. & G. in Newb. Pacif. R. R. Rep. 6[3]: 72. 1857.

Horkelia Gordonii Hook. Jour. Bot. & Kew Misc. 5: 341. 1853.
Potentilla Gordonii Greene, Pittonia 1: 106. 1887.
Ivesia alpicola Howell, Fl. NW. Am. 1: 182. 1898.
Horkelia Gordonii alpicola Rydb. Mem. Dep. Bot. Columbia Univ. 2: 152. 1898.

Perennial, with a thick and deep root, and short, woody, cespitose caudex, covered with the remains of old leaves; stem subscapose, minutely glandular-puberulent or glabrous, 1–2 dm. high, seldom 3 dm.; basal leaves numerous, finely puberulent or glabrate, pinnate; leaflets 10–20 rather approximate pairs, 5–12 mm. long, divided into 3–5 segments or again divided; segments broadly oblong to linear; stem-leaves, if any, very small; cyme capitate; hypanthium campanulate, 3–4 mm. in diameter, villous-puberulent and somewhat glandular, yellowish; bractlets linear, about half the length of the ovate sepals, which are about 5 mm. long; petals yellow, spatulate or oblanceolate, shorter than the sepals; stamens 5; pistils generally 1–3, sometimes more.

TYPE LOCALITY: Upper Platte River.
DISTRIBUTION: Mountains from Washington to California, Colorado, and Montana.
ILLUSTRATIONS: Jour. Bot. & Kew Misc. 5: *pl. 12;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 92, f. 7–11.*

19. **Ivesia megalopetala** Rydberg.

Horkelia Gordonii megalopetala Rydb. Mem. Dep. Bot. Columbia Univ. 2: 152. 1898.

Perennial, with a thick taproot and a short cespitose almost pulvinate caudex; stem scapiform, usually less than 1 dm. high; basal leaves numerous, 3–5 cm. long, glandular-puberulent, pinnate with numerous small crowded leaflets; leaflets 2–4 mm. long, cleft to near the base into spatulate divisions; stem-leaves very small or none; cyme subcapitate; hypanthium glandular-puberulent, cupulate, 3–4 mm. wide; bractlets oblong, half as long as the triangular-lanceolate sepals, which are about 2 mm. long; petals obovate, longer than the sepals; stamens 5; filaments filiform.

TYPE LOCALITY: Mount Dana, California.
DISTRIBUTION: Sierra Nevada and Mt. Eddy, California.

20. **Ivesia pygmaea** A. Gray, Proc. Am. Acad. 6: 531. 1865.

Ivesia Gordonii pygmaea S. Wats. Bot. Calif. 1: 183. 1876.
Potentilla decipiens Greene, Pittonia 1: 106, as to synonyms. 1887. Not *P. decipiens* Jordan.
Horkelia pygmaea Rydb. Mem. Dep. Bot. Columbia Univ. 2: 152. 1898.

Perennial, with a deep perennial root and closely cespitose caudex, densely covered with remains of old leaves; stem scapose, 4–7 cm. long, finely glandular-puberulent and sometimes with a few longer hairs; basal leaves very numerous, 2–5 cm. long, finely glandular-puberulent with numerous, minute, very densely crowded and imbricate leaflets, which are 1–2 mm. long, divided to the base into oblong or oval thick segments tipped with bristles; cyme subcapitate, or in age somewhat corymbose; hypanthium about 4 mm. in diameter, saucer-shaped, glandular-hirsute with a rather conspicuous disk; bractlets oblong, about two-thirds as long as the broadly ovate sepals; petals obovate, a little exceeding the sepals; stamens 5–10.

TYPE LOCALITY: Sierra Nevada, California.
DISTRIBUTION: Sierra Nevada of California and Nevada.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 93, f. 1–7.*

21. **Ivesia Shockleyi** S. Wats. Proc. Am. Acad. 23: 263. 1888.

Potentilla decipiens Greene, Pittonia 1: 106, excluding synonyms. 1887. Not *P. decipiens* Jordan.
Potentilla nubigena Greene, Erythea 3: 36. 1895.
Horkelia Shockleyi Rydb. Mem. Dep. Bot. Columbia Univ. 2: 153. 1898.

Perennial, with a deep woody root, and densely cespitose caudex, covered with the remains of old leaves; stem subscapose, densely glandular, 2–5 cm. high; basal leaves very numerous, 2–4 cm. long, densely glandular, pinnate, with about a dozen pairs of

minute leaflets, which are 2–3 mm. long, crowded, cleft to the base into several obovate thick segments mostly tipped with bristles; inflorescence open, strictly cymose and with diverging branches; hypanthium about 3 mm. in diameter, saucer-shaped, densely glandular and in age decidedly 5-angled with a prominent disk; bractlets ovate, about half the length of the broadly ovate sepals; petals spatulate, white (?), about equaling the sepals; stamens 5.

TYPE LOCALITY: Summit of Silver Peak, Alpine County, California.
DISTRIBUTION: Sierra Nevada, California.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 93, f. 8–14.*

22. **Ivesia chaetophora** Rydberg.

Horkelia chaetophora Rydb. Bull. Torrey Club 26: 543. 1899.

Perennial, with a strong root, and a stout caudex, covered with the remains of leaf-stalks and stipules from former years; stems several, 1–1.5 dm. high, almost scapose, finely puberulent; basal leaves numerous, about 1 dm. long, with 15–20 pairs of leaflets; their stipules broad, brown, obtuse, bristly ciliate; leaflets 3–5 mm. long, divided to near the base into linear-oblong segments, densely puberulent and tipped with bristles; cyme rather many-flowered and open; hypanthium 5–7 mm. in diameter, puberulent and hirsute; bractlets linear-oblong, one-third shorter than the broadly lanceolate-acute sepals; petals yellow, oblong, about equaling the sepals; stamens 10; filaments filiform; pistils about 20.

TYPE LOCALITY: Farwell Gap, Tulare County, California.
DISTRIBUTION: Southern Sierra Nevada.

IV. **Setosae.** Stems several from the caudex, rather leafy, with open rather few-flowered cymes. Hypanthium saucer-shaped. Petals obovate or oblanceolate, clawed. Stamens 5–30. Leaves with comparatively few leaflets, which are broadly obovate to reniform-flabelliform, coarsely toothed or incised.

23. **Ivesia Baileyi** S. Wats. Bot. King's Expl. 90. 1871.

Potentilla Baileyi Greene, Pittonia 1: 105. 1887.
Horkelia Baileyi Rydb. Mem. Dep. Bot. Columbia Univ. 2: 154. 1898.

Perennial, with a taproot and cespitose caudex; stems several, decumbent or ascending, 1–3 dm. long, finely pubescent or glabrate, somewhat leafy; stipules obovate, entire, about 5 mm. long; basal leaves many, 1–2 dm. long, pinnate; leaflets 4–6 rather distant pairs, finely pubescent or glabrate, 5–10 mm. long, thin, obovate or orbicular, generally oblique, deeply incised into rounded-obovate segments; stem-leaves smaller, with 2–3 pairs of leaflets; inflorescence rather open and truly cymose, with slender pedicels; hypanthium 4–5 mm. broad, slightly glandular-villous, saucer-shaped, in fruit evidently 5-angled with a disk; bractlets linear-oblong, one-third to two-thirds the length of the broadly ovate sepals, which are 2 mm. long; petals yellow, spatulate, shorter than the sepals; stamens 5, with short filaments, which incline toward the 4 to 8 pistils.

TYPE LOCALITY: Wright's Cañon, West Humboldt Mountains, Nevada.
DISTRIBUTION: Interior of Oregon and Nevada.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 94, f. 1–6.*

24. **Ivesia setosa** (S. Wats.) Rydberg.

Ivesia Baileyi setosa S. Wats. Bot. King's Expl. 91. 1871.
Horkelia Baileyi setosa Rydb. Mem. Dep. Bot. Columbia Univ. 2: 154. 1898.

Perennial, with a thick taproot and short cespitose caudex; stems several, ascending, erect or decumbent at the base, 1–1.5 dm. high, glandular-puberulent, few-leaved; stipules of the basal leaves subulate, of the stem-leaves ovate, more or less toothed; basal leaves numerous, 1–1.5 cm. long, pinnate, with 7–10 pairs of leaflets, which are cuneate or flabelliform, 5–8 mm. long, rather thick, glandular-puberulent, divided to near the base into oblong or oblanceolate divisions, usually terminated by bristles; stem-leaves similar but with

fewer leaflets; inflorescence rather open, cymose, usually with recurved pedicels in fruit; hypanthium 3–4 mm. broad, glandular-puberulent, saucer-shaped, in fruit 5-angled; bractlets linear to elliptic, about two-thirds as long as the triangular-ovate sepals, which are about 3 mm. long; petals spatulate, about equaling the sepals; stamens 5, with short filaments, inclined towards the few pistils.

TYPE LOCALITY: Fremont's Pass, East Humboldt Mountains, Nevada.
DISTRIBUTION: Nevada.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 94, f. 7.*

17. **PURPUSIA** Brand. Bot. Gaz. **27**: 446. 1899.

Cespitose glandular perennials, with thick roots and short caudices. Leaves odd-pinnate, mostly basal. Inflorescence racemosely or corymbosely cymose. Hypanthium deeply campanulate. Bractlets none. Sepals 5, valvate. Petals 5, white, oblanceolate, acuminate. Stamens 5, opposite the sepals, inserted at the mouth of the hypanthium; filaments filiform; anthers didymous. Pistils 6–7, on a stalked receptacle; styles nearly terminal, filiform, articulate at the base. Embryo curved; radicle superior.

Type species, *Purpusia saxosa* Brand.

1. **Purpusia saxosa** Brand. Bot. Gaz. **27**: 447. 1899.

Stems 1–1.5 dm. high, hirsute and viscid; basal leaves numerous, odd-pinnate; leaflets 2–3 pairs, broadly obovate, cuneate or suborbicular, 1–1.5 cm. long, more or less deeply cleft into 5–10 rounded or oblong teeth, densely glandular-pilose; the terminal one often 3-divided; stem-leaves smaller and becoming bract-like above; stipules ovate, acuminate, about 7 mm. long, entire or incised; pedicels 1–2 cm. long; hypanthium 3 mm. long, indistinctly 10-ribbed; sepals 4 mm. long, lanceolate or ovate-lanceolate, acuminate; petals white, 4 mm. long, 1 mm. wide, slightly acuminate; receptacle cylindric, 2 mm. long, bearing the pistils on the hirsute summit; styles filiform; achenes smooth.

TYPE LOCALITY: Sheep Mountains, Nevada.
DISTRIBUTION: Known only from the type locality.

18. **COMARELLA** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 156. 1898.

Perennial herbs, with very thick woody taproots and short, thick, scaly caudices. Leaves pinnate with numerous crowded leaflets. Inflorescence cymose-paniculate with slender branches. Hypanthium wheel-shaped, *i. e.*, the central portion turbinate, enclosing the ovaries and beset on its inner surface with long bristles, the peripheral portion, making an obtuse angle with the former, flat, pentagonal in outline, making nearly a right angle with the pedicel. Petals dark-purple, narrowly linear, shorter than the calyx. Stamens 5, inserted at the outer margin of the flat portion of the hypanthium; filiments filiform, bent inward; anthers small, opening by a longitudinal slit. Pistils two; styles long and filiform, terminal. Mature achenes assuming a nearly horizontal position, rather flat. Seed inserted near the base of the style, pendulous, anatropous.

Type species, *Horkelia multifoliolata* Torr.

Plant puberulent; leaflets 40–60, 5–10 mm. long. 1. *C. multifoliolata.*
Plant glabrous; leaflets about 30, 3–5 mm. long. 2. *C. sabulosa.*

1. **Comarella multifoliolata** (Torr.) Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 156. 1898.

Horkelia? multifoliolata Torr. in Sitgreaves, Rep. Exp. 159. 1853.
Potentilla depauperata Engelm.; A. Gray, Proc. Am. Acad. **7**: 399. 1868.
Ivesia depauperata A. Gray; Brewer & Wats. Bot. Calif. **1**: 184. 1876.

Perennial, with a thick root and short caudex; stem 3–6 dm. high, ascending or erect, finely pubescent, in age glabrate, somewhat leafy; stipules lanceolate, often cleft; leaves 1–3 dm. long, finely pubescent when young, in age glabrate, pinnate; leaflets 20–30 rather

approximate pairs, 5–10 mm. long, 3–5-cleft, with oblong or ovate segments; cyme open, flat-topped, with diverging branches and slender pedicels; hypanthium wheel-shaped, puberulent, about 5 mm. in diameter, purplish, in fruit 5-angled; bractlets linear-subulate, somewhat fleshy, much shorter than the broadly lanceolate acuminate purplish-tinged sepals, which are 5 mm. long; petals purple, linear or oblanceolate, acute, shorter than the sepals.

TYPE LOCALITY: Western border of New Mexico [now within Arizona].
DISTRIBUTION: Arizona.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 96.*

2. **Comarella sabulosa** (M. E. Jones) Rydb. Mem. Dep. Columbia Univ. 2: 157. 1898.

Potentilla sabulosa M. E. Jones, Proc. Calif. Acad. II. 5: 680. 1895.
Ivesia sabulosa M. E. Jones, Proc. Calif. Acad. II. 5: 680, as synonym. 1895.

Stems several from the caudex, ascending, less than 2 dm. high, more or less tinged with brown, slender, glabrous; stipules ovate-lanceolate; leaves less than 1 dm. long, glabrate, pinnate; leaflets about 15 rather approximate pairs, 3–5 mm. long, 2–3-cleft into oval segments; cyme open and rather flat-topped, with divergent branches and slender pedicels; hypanthium glabrous, wheel-shaped, 3–4 mm. in diameter, in age 5-angled; bractlets linear-subulate, thickish, much smaller than the ovate-lanceolate acuminate sepals.

TYPE LOCALITY: Head of the Sevier River, Utah.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 97, f. 1–5.*

19. **STELLARIOPSIS** (Baillon) Rydb. Mem. Dep. Bot. Columbia Univ. 2: 155. 1898.

Potentilla § *Stellariopsis* Baillon, Hist. Pl. 1: 370. 1869.

Perennial herbs, with thick woody roots and short erect caudices covered with numerous leaves. Leaves pinnate, with numerous, minute, crowded, and imbricate leaflets. Inflorescence cymose-paniculate, open. Hypanthium saucer-shaped, small. Bractlets, sepals, and petals 5. Petals white, elliptic or round-ovate, slightly unguiculate. Stamens 15, inserted on the margin of the disk, separated some distance from the pistil; filaments filiform, long; anthers purplish, didymous, obcordate, each half nearly pear-shaped, dehiscent by a subterminal pore. Pistil single, surrounded by numerous bristles; style long and slender, terminal. Mature achene very large for the size of the flower, at last assuming a more or less horizontal position. Seed inserted near the base of the style, pendulous and anatropous.

Type species, *Ivesia santolinoides* A. Gray.

1. **Stellariopsis santolinoides** (A. Gray) Rydb. Mem. Dep. Bot. Columbia Univ. 2: 155. 1898.

Ivesia santolinoides A. Gray, Proc. Am. Acad. 6: 531. 1865.
Potentilla santolinoides Greene, Pittonia 1: 106. 1887.

Perennial, with a deep root, not very thick, crowned with a short erect caudex, which is densely covered with hairy scales; stems several, erect, much branched, more or less silky-villous on the lower portion with long white spreading or reflexed hairs; stipules ovate, 5 mm. or less, often divided; basal leaves numerous, 3–10 cm. long, densely white-silky, terete and worm-like from the numerous minute crowded leaflets; stem-leaves similar, but smaller; cyme intricately branched into filiform branches and very slender pedicels 1–2 cm. long; hypanthium finely puberulent, saucer-shaped, in fruit 3 mm. in diameter; bractlets ovate, minute, about one fourth the length of the ovate sepals, which are 1.5 mm. long; petals white, broadly obovate or orbicular, twice as long as the sepals.

TYPE LOCALITY: Sierra Nevada, California.
DISTRIBUTION: Sierra Nevada and San Bernardino Mountains, California.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 95.*

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